

AIRFIX magazine

NOVEMBER 1971

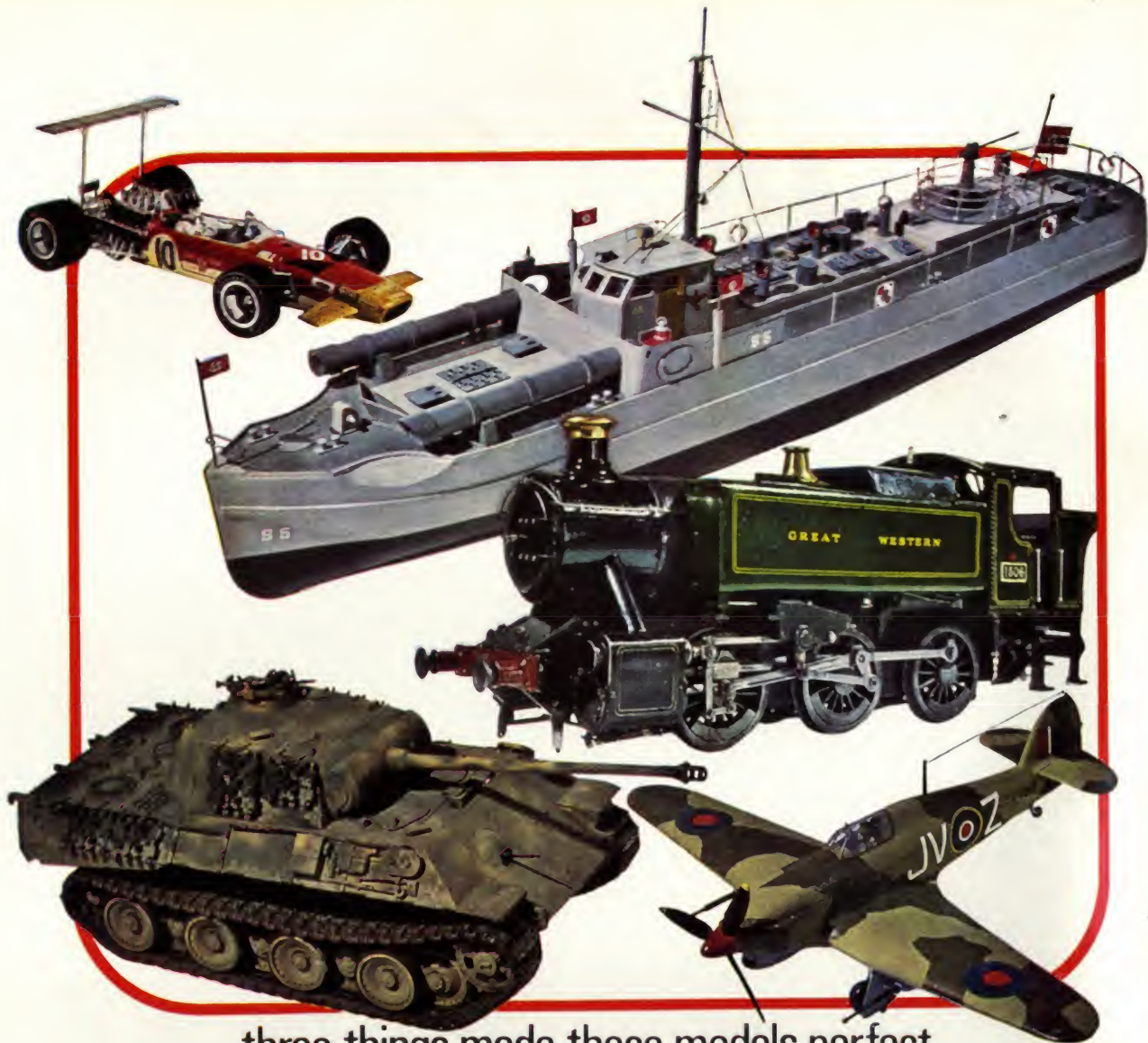
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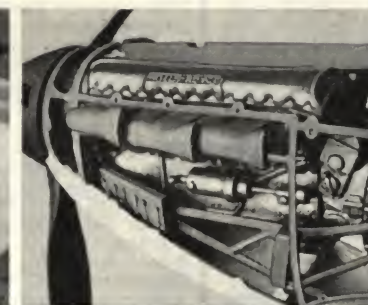


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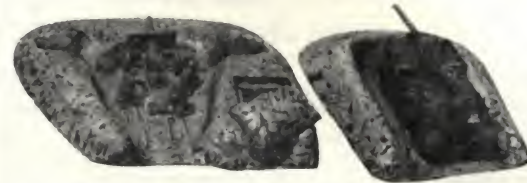
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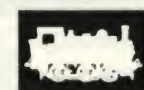
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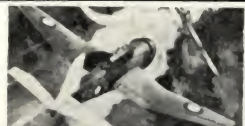
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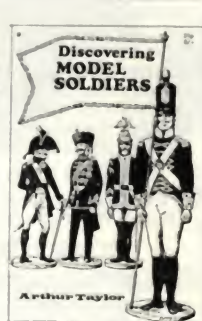
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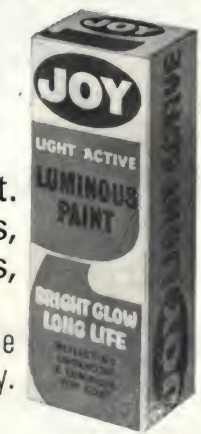
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AIRFIX

magazine

FOR PLASTIC MODELLERS

Volume 13 No 3

November 1971

Editor: Chris Ellis

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Cover Picture

In 1910 the British and Colonial Aeroplane Company (Bristol) manufactured an aircraft which closely followed the successful French Farman design, but incorporated many structural refinements. Though it was known as 'Boxkite', this was really a nickname shared by several aircraft of similar layout. In 1911 the War Office bought eight and the Admiralty one of these machines, and a few of them were still in use as primary trainers when war was declared in 1914. Typical power plant was a 50 or 70 hp Gnome rotary engine, and upper wing extensions could be fitted to increase the aircraft's carrying capacity. It had a speed of about 40 mph.

A replica 'Boxkite' that was made for the film 'Those Magnificent Men In Their Flying Machines' can be seen flying at certain times at the Shuttleworth Trust Airfield in Old Warden, Bedfordshire.

(Photograph by B. Baker from a painting by R. H. Williams.)

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Contents

In the Air: latest aviation news from Alan W. Hall	124
Fox Moth: advanced conversion by Tony Woollett	126
'Black Swan' Class Sloops: history of a famous class by Peter Hodges	128
Weed-spraying Unit: unusual railway model by Michael Andress	131
The Vought F4U Corsair: sequel to the September article by Alan W. Hall	132
Book Reviews: new publications of interest to modellers	138
South African Harvards: by Richard C. Gardner and D. Becker	139
The Scorpion Family: history and development by Noel Ayliffe-Jones	146
Medieval Artillery: modelled by Terence Wise	148
Hummel: German SP gun described and modelled by Gerald Scarborough	150
Model Soldiers: making a heliograph team by Roy Dilley	152
Fallschirmjäger: the post-Crete period by Robert C. Gibson	154
New Kits and Models: latest releases reviewed for modellers	156
Photopage: more aircraft pictures from readers	160
Letters to the Editor: your chance to win a free Airfix kit	161

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This magnificent photograph of a Vought-built A-7D of the 333rd Tactical Fighter Training Squadron based at Davis-Monthan Air Force Base, Arizona, was taken by Major E. R. Skowron.



HERR H. P. DORNER, Aviation Editor of the German plastic model magazine *Plastikmodell*, wrote to me recently telling of a salvage operation near Hamburg which unearthed a number of interesting remains of a Messerschmitt Bf 110 which had been shot down and landed in swampy ground during World War 2. One propeller blade, a main landing gear strut, the rear wheel, some burnt radio instructions and 13 oxygen bottles were the main finds.

The northern part of Germany contains many last war relics yet to be unearthed and preserved. Much of the present work comes under the supervision of the Luftwaffe Museum in Uetersen, near Hamburg, and a small group of aircraft modellers under the direction of Herr H. H. Lohse undertook the recent salvage operation. Most of the parts that have been found will go on display at the Museum, which also has many other historic treasures in its collection.

The group know the whereabouts of several Bf 109s, Fw 190s, Spitfires, Mustangs and a lone Lancaster waiting to be recovered. Herr Dorner found 50 wooden propellers of World War 1 vintage stored in a farmhouse in the area.

Information on the location of the crashed Bf 110 came from an interested farmer who, when he was 11 years old in February 1943, saw the aircraft come down. It was shot down by Allied fighters and crashed in swampy ground near his farm. The aircraft made a belly landing after the crew had abandoned it and luckily many of the parts were found to be intact although covered by the marshy ground. Digging took two days and the group unearthed parts of the aircraft which were extremely well preserved. They dug a hole about ten metres square and little by little unearthed wing sections, a fuel tank, parts of the fuselage, fuel pipes and a main landing gear strut; without doubt the most valuable part salvaged was the rear wheel which was completely intact and the air pressure inside the tyre had been maintained

during the 27 years it had been buried. Valuable information was found in the scorched radio instructions, which gave frequencies and operating instructions for the German night fighter force.

Apart from preserving the parts salvaged, the swamp has kept the original colours of the aircraft in mint condition. Herr Lohse thinks that many modellers may be interested in purchasing small parts of the aircraft which are not usable for display purposes and is, therefore, prepared to sell pieces of the airframe which have the original colours carefully preserved. I have seen two small parts which had colour chips of Schwarzgrün 70 and RLM Grau 02 on them. Prices can be obtained by writing to Herr H. H. Lohse, 22 Elmshorn, Gärtnerstrasse 49, West Germany.

Third Year Lucky

THE Goodyear International Air Race, which was held at Halfpenny Green on August 31, was won by Mr John Cull flying Taylor Monoplane G-APRT. This was Mr Cull's first success in three years of light aircraft racing and he sped to victory almost a minute ahead of his nearest competitor after completing a 90 mile course. The Taylor Monoplane was designed and built in the lounge of its original owner in 1959; unfortunately Mr Taylor was killed while testing another home-built aircraft later and the present owner took over the Taylor Monoplane. Second place in the race went to Airtourer G-AYWM and third was Hornet Moth G-ADKM.

The two day event at Halfpenny Green was not without incident. On the practice flights, Topsy Nipper G-ARVU forced landed in a field, the aircraft being in no state for the race on

This tail wheel was recently salvaged in northern Germany from a Messerschmitt Bf 110 shot down during 1943 by Allied fighters. The aircraft landed in a swamp near Hamburg and the work of digging out the remains was done by a group of enthusiasts.

(Photo E. G. Scholz, Hamburger Morgenpost).

The next 'Bombing Colours' instalment appears next month. M. J. F. Bowyer taking a rest for this issue. Also our promised picture feature on half-tracks is held over for space reasons.



AIRFIX magazine

the following day. The other Topsy Nipper entered, G-ARGB, developed an oil leak during the race and had to land rather hurriedly in a rather dishevelled and oily state. Another incident concerned Gemini G-ALZG which had a bird strike during one of the circuits, making an impressively large hole in the forward nose section.

Hawker Siddeley 125 Sales Top 250

HAWKER Siddeley celebrated the 250th sale of the HS 125 business jet on September 15, with a 'fly-in' to the Hatfield plant of some of the leading European operators. The sale—through Beechcraft Hawker in the United States was to Dennis O'Connor of Houston, who has large oil interests in Texas—was one of two recorded recently by the North American Sales Organisation, which brings total HS 125 export orders to 203. A further sale by HSA in the UK makes the total order book 252 aircraft.

The HS 125, therefore, overtakes the HS 748 twin turboprop feeder liner (250 sold), as Britain's current best selling turbine powered civil aircraft. HS 125 business jets have been sold to civil and military customers in 22 countries. The total value of all sales is over £70m. Export sales are worth over £54m and represent 80% of all aircraft sold. The best export market is North America, where 143 sales have been made, including 21 to Canada.

Launched as a private venture by Hawker Siddeley in 1961, the aircraft has been developed continuously and is expected to remain highly competitive for many years to come. At the recent Business and Light Aircraft Show at Cranfield I was lucky enough to be invited to fly in the right-hand seat of the Series 400 demonstrator aircraft G-AYOK.

Piloted by Mr Des Penrose, who is normally the Trident production test pilot, the aircraft climbed steeply from the Cranfield runway and was soon at 25,000 feet heading for the Wash where its speed and manoeuvrability were demonstrated. 'OK' was the aircraft recently used by three Hull-based companies who, in the space of six days, used the aircraft for sales demonstration and liaison visits throughout Europe, proving that many more visits could be made using a corporately-owned aircraft than relying on scheduled airliner services.

Undoubtedly the HS 125 will eventually equal and possibly pass the 540 world-wide sales made by its predecessor, the Dove.

Cranfield Show

THE second *Flight International* Business and Light Aircraft Show at Cranfield in September was a resounding success. Although there was no organised flying display, the number of aircraft movements and interesting visitors made up for its absence. Civil aircraft enthusiasts were able to see a multitude of different types ranging from the Russian Yak-40 to the numerous American and French single- and twin-engined private club or business aircraft.

For the enthusiast living in the south of England it was pleasant to see aircraft from the north and even from Northern Ireland, which normally do not venture as far south as Cranfield. On the weekend of the show the visiting aircraft park was packed and one's camera worked overtime to record the rarer types.

Although it is impossible to give a detailed account of every-



Winner of the Goodyear Trophy Race at Halfpenny Green was Taylor Monoplane G-APRT flown by Mr John Cull (S. G. Richards photo).



Two of the most interesting aircraft on show at this year's CFS Little Rissington At Home were Vampire T11 XK624 and Meteor T7, WA669. The interesting yet unusual configuration of the Thurston Teal, G-AXZN, is shown in this photograph of the aircraft during the Business and Light Aviation Show at Cranfield. The Teal was demonstrated in its amphibious role by landing on a nearby stretch of water in a disused gravel pit.

thing on show, several items were worthy of notice.

One of the most interesting and certainly unusual aircraft was the Thurston Teal amphibian which was demonstrated continuously during the day that I spent at the show. Using the wide expanse of calm water offered by a nearby disused gravel pit, the Teal demonstrated its ability to land on water as well as land, and many potential purchasers were given rides to demonstrate its abilities. Normally based at Goodwood, the aircraft is frequently seen in the Chichester area, and its pilot, Mr Chris Murphy, showed that for £9,500 the Teal was a very useful aircraft for service almost anywhere around the British Isles.

Being an amphibian, the 150 hp Lycoming engine was mounted above and behind the cockpit and I was told that its economics were sufficiently on the credit side to allow the owner/operator to fly at reasonably cheap rates. Having three seats, G-AXZN is the only one of its type on the British register at the present moment but Marinair (Transport) Ltd, the UK agents, are pursuing an active sales policy which may mean that before long other aircraft of the type will be seen in British skies.

The largest aircraft on display was the Yak-40 registered I-JAKA, marketed by Aertirrena and looking to be about the size of a DC-3. The aircraft gave several impressive performances during the day and I was impressed by the way in which its handling qualities showed that it could be used under many varying field conditions but maintaining a workmanlike load combined with a short take-off and extremely short landing run.

Short Bros & Harland had their Skyliner 'SZJ' available for inspection and I was given the opportunity for a short demonstration flight in this aircraft. My impressions were that the aircraft lived up to everything that the manufacturer claimed for it. The passenger cabin was extremely comfortable, having all of the qualities of a much larger civil airliner, plus equally adequate head room and a very low noise level. The 19-seat aircraft, which was shown at the Paris Air Show this year, has two of the new Garrett turboprops mounting four-bladed propellers which I was told considerably lessen the noise level. To date, 61 Skyvans have been sold and with the present worldwide interest in STOL aircraft an ever-expanding market seems assured.

DH Fox Moth

By Tony Woollett

AN ADVANCED CONVERSION BASED ON THE AIRFIX TIGER MOTH KIT

PRODUCED early in 1932, the DH Fox Moth proved to be an outstanding success, combining low initial cost with remarkable economy. By using Tiger Moth components mated to a new fuselage, designer A. E. Hagg produced one of the most successful light passenger-carrying planes of the 1930s.

This conversion is not for beginners, but if you have ever moulded a canopy in acetate, you will have no difficulty in producing the major new component, the fuselage.

STAGE 1 The Fuselage Lightly cement together two pieces of hard balsa wood $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$ inch. Allow the cement time to dry, mark out the side elevation of the fuselage on the balsa block and carve to shape. Similarly mark out the plan view and also carve to shape. Finally using the templates, round off the top edges of the fuselage, also rounding off the nose and generally smoothing to shape. It should be mentioned that the cockpit shape in side elevation should be ignored and the fuselage carved smoothly over this area. By gently easing a modelling knife down through the lightly cemented join, it should now be possible to split the shaped fuselage, leaving you with two perfectly matched fuselage halves. These then are your two male moulds.

The female mould should be made from a piece of hard balsa about 4×9 inches, $\frac{1}{8}$ inch thick. Simply lay one of your male moulds on the balsa in a central position and lightly pencil around the fuselage shape. Finally cutting out the shape so scribed. If you have followed your pencilled shape exactly you should find that the male mould should push through the female with about $\frac{1}{16}$ inch to spare all round.

Both male moulds should have balsa blocks cemented to their inner faces, to act as handles during the moulding process. I find 30 thou plastic card the ideal thickness for moulding. Accordingly pin or clip a piece of 30 thou plastic card about 4×8 inches over the female mould. Hold this up against the light and



Above: This picture shows the moulding of the fuselage halves, with a male former on the left. Note that windows are not cut in until after moulding.

pencil the fuselage shape revealed on to the plastic card. The female mould with the plastic card securely pinned or clipped to it, should be placed under a source of heat (I use the grill on our gas cooker) and heated until it becomes 'floppy' and starts to smoke. Remove smartly from the heat and place on a previously arranged support. Then firmly plunge the male mould through. The process is then repeated for the other half of the fuselage. If at first you don't succeed satisfactorily, try it again with a new sheet of plastic card.

Leaving the male moulds within the fuselage shells now formed, you can then use the inner faces as guides for cutting off the excess plastic before finally filing and rubbing down the two fuselage halves until they mate perfectly.

Referring to the plan mark out the windows, cockpit, tailplane locations on each fuselage half and also the air inlet hole at the front of the port fuselage half. Drill and/or carve out using the moulds as supports where necessary. Using 20 thou clear plastic, cut slightly oversize window shapes, and place these in position

Picture below and heading picture shows two aspects of the completed model resplendent in its Hillman Airways livery—a real showpiece for a collector.



on the inside of each fuselage half. Cement securely by running Mek-Pak around the edges. Interior detail should now be built into one half of the fuselage, ie a bulkhead between passenger compartment and engine and between passenger compartments and pilot's cockpit, floors, 4 seats in passenger compartment, 2 facing rearward and 2 facing forwards, pilot seat, instrumentation, controls, etc. When you have detailed the interior to your satisfaction, the two halves can be cemented together and left to dry. Don't forget to add the metal push-rod, so prominent on all Gipsy engined aircraft, through the front-cowling air inlet.

STAGE 2 The Wings The Fox Moth did not have the leading edge slots as on the Tiger Moth so it is necessary to rub these down and re-scribe the wing ribs over this area. Next with a fine toothed saw or sharp modelling knife remove the centre section fuel tank from each wing section. The fuel tank should now be increased in width to $\frac{1}{8}$ inch by adding plastic card equally to either side and smoothing to shape, referring to the plan all the while. It will be seen that the sweep-back of the wings is markedly less than on the Tiger Moth, so the ends of the severed wings should be filed gently so that when butted against the enlarged fuel tank, the angle is correct. When you are satisfied, cement and butt join the two wing sections to the fuel tank setting the correct dihedral angle, by placing a weight on the tank and suitable sized blocks under each wing tip. Set aside to dry. The centre section of the bottom wing should now be cut away in a like manner as the fuel tank, and discarded. Check and file as necessary to ensure that the wings will butt-join accurately with the lower fuselage.

Using suitably sized plastic rod or sprue, fashion two sets of 'N' shaped centre section struts—chamfering the bottom ends where they mate with the fuselage. Locate and cement to the underside of the top wing centre section and leave to dry. All 4 rear locating holes for the struts should be filled and smoothed down and new locating holes drilled immediately in board of the previous holes. The wings should now be painted to represent doped aluminium and for my money you cannot beat Woolworths Heat-resisting Aluminium Paint. When dry the registration letters are hand painted or if you have them, applied as transfers.

STAGE 3 Fuselage The fuselage join should now be smoothed down and the engine cowling and panel lines scribed with a sharp modelling knife. The air louvres at each side of the cowling are made from very fine stretched sprue and placed in position with the aid of Mek-Pak. The large oil tank housing on the port side of the cowling is made and shaped from plastic card and set in position again using Mek-Pak, as is the small intake on the starboard cowling. Mask the bottom half of the fuselage and paint the top half white (2 coats) and when dry, mask the top half and paint bottom half blue (2 coats).

While the fuselage paint is drying, prepare fuselage registration letters from Yeoman $\frac{1}{8}$ inch black alphabets. Paint top half of letters blue leaving the black edging. When dry paint the bottom half white, leaving the black edging (2 coats). When dry carefully cut out and apply to fuselage sides.

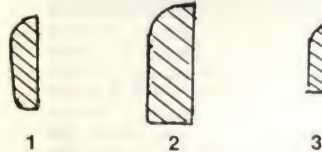
STAGE 4 Main Assembly The main wing struts should now be shortened by $\frac{1}{16}$ inch at each end and generally thinned down and tapered. When satisfied cement and locate beneath the top wing. Carefully scrape away paint from the fuselage where the centre section struts butt on fuselage. Gently place the top wing assembly in position on fuselage and run Mek-Pak on to the 4 centre section attachment points thus cementing them securely to the fuselage. When set scrape paint away from fuselage at point where bottom wings locate. Carefully cement and butt-join each wing to fuselage, at the same time cementing and locating struts into bottom wing. Set aside to dry.

STAGE 5 Tailplane and Rudder The tailplane supplied in the kit is inaccurate, so it is necessary to make a new one from .030 inch plastic card, referring to the plan. When satisfied locate and cement in position on rear of fuselage ensuring that it sits horizontally. Locate and cement rudder and fin in position and when dry give a coat of aluminium paint. When dry locate and cement in position tail-plane struts.

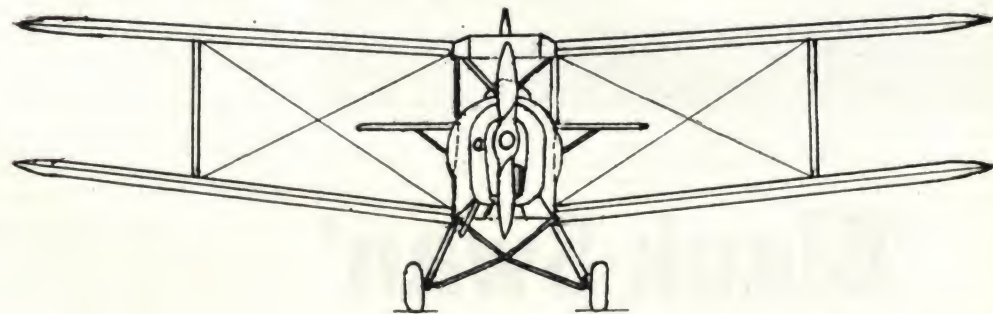
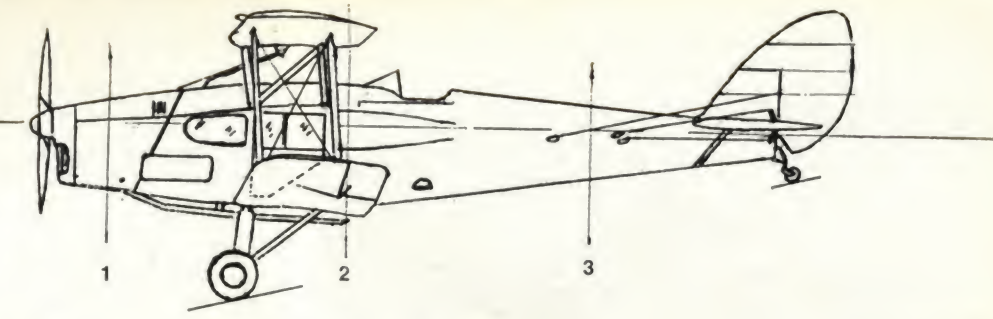
STAGE 6 Undercarriage The undercarriage is then fitted beneath the fuselage bearing in mind that the shock absorber leg is to the front on the Fox Moth and not the rear as on the Tiger Moth. I found it necessary to slightly shorten the shock absorber to get the right angle. I fashioned a new axle-spreader bar from stretched sprue, as I felt the one in the kit looked rather thick and clumsy. When the undercarriage had set in position it was painted blue and the wheels which had previously been painted were stuck in position when the undercarriage paint had dried. The tailwheel which is very minute was made up from sprue and cemented in position and when set proved to be far stronger than it looked. The fuel line was then cut to size from suitable sprue and cemented in position on the top of the cowling and under the fuel tank. The propeller boss was painted white and the blades silver and when dry, cemented in position.

STAGE 7 Bracing wires For bracing the model I used a very fine wire slightly thinner than 5 amp fuse wire rolled out straight under a metal ruler and then cut to size and stuck in place with Humbrol Universal Glue. This wire was also used for the control wires to rudder and tailplane. The model was finally completed by the addition of the exhaust pipe from stretched sprue and the wind-screen which was cut from the rear end of a 1:72 scale fighter bubble canopy that I had in the spares box.

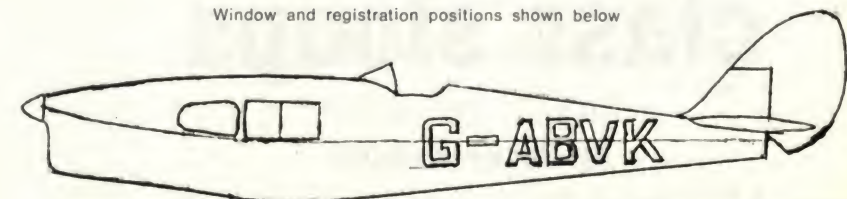
Fuselage cross-sections



Close view along the fuselage sides; note the rigging wires.

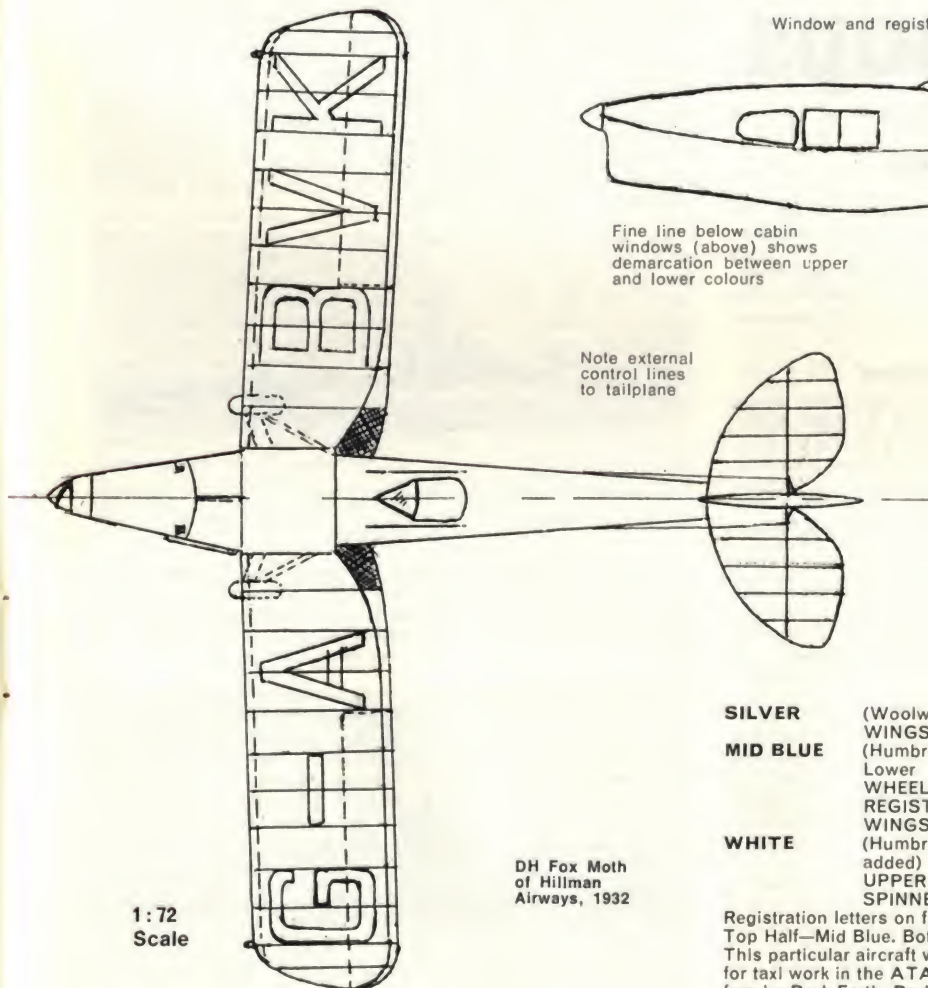


Window and registration positions shown below



Fine line below cabin windows (above) shows demarcation between upper and lower colours

Note external control lines to tailplane



1:72 Scale

DH Fox Moth of Hillman Airways, 1932

COLOUR NOTES

SILVER (Woolworths Heat Resisting Aluminium)
MID BLUE WINGS, TAILPLANE, FIN, AND RUDDER (Humbrol Deltic Blue)
WHITE Lower half of FUSELAGE, UNDERCARRIAGE, WHEEL CENTRES, CENTRE SECTION STRUTS, REGISTRATION LETTERS ABOVE AND BELOW WINGS. (Humbrol No 128 with small amount of White Gloss added)
UPPER HALF OF FUSELAGE, WING, STRUTS AND SPINNER.

Registration letters on fuselage sides as follows: Top Half—Mid Blue. Bottom Half—White outlined in Black. This particular aircraft was impressed at the outbreak of war and used for taxi work in the ATA. Alternative colour scheme for it could therefore be Dark Earth, Dark Green—Yellow camouflage.



Top view shows the registration letters in position. Finishing and markings for this model require considerable care in application.



Erne in 1943 warpaint, returning from patrol. She has four single Oerlikons, the quarterdeck pom-pom and the familiar Radar Type 272 on a tall and somewhat fragile-looking pylon (Imperial War Museum).

'Black Swan' class sloops

PART 1: THE SHIPS

By Peter Hodges

ALTHOUGH the title of this two-part article specifies the 'Black Swan' class, it will, in fact, embrace earlier and later ships, all of which fall within the broad category of Escort Sloops. Four classes—'Bittern', 'Egret', 'Black Swan', and 'Modified Black Swan'—will be considered. Part 2 (following the usual pattern of this Naval series) will be concerned with conversion details and include scale drawings.

The 'Bittern' and 'Egret' classes

By the mid-1930s, the large number of escort and patrol vessels dating from the naval building programme of the First World War had been gradually whittled away, and were replaced by newly-constructed ships, whose size and capabilities improved, class by class, until, with the 'Bittern' class, they had reached almost destroyer proportions, though without their speed. The 'Bitterns' were a somewhat hybrid trio. They were designed to mount four single 4.7 inch guns, destroyer-fashion, on a 265 foot waterline and were capable of about 18 knots.

The first was laid down as the 'Name Ship' but during building, it was decided to complete her as an Admiralty Yacht, and she was re-named *Enchantress*. Her after armament was suppressed; extra accommodation was worked in, and she was finished in a Victorian colour scheme of black hull, white upperworks and buff funnel.

The next ship, *Stork*, was completed as an unarmed survey vessel and the Ship Name Committee finally caught up with themselves by naming the last of the three *Bittern*. By this time the main armament had been completely revised to become three twin 4 inch HA (which were better suited to escort ship requirements), and the class designation became somewhat muddled, for the completed 'Bittern' looked nothing like the original class concept.

At the outbreak of war, *Enchantress* and *Bittern* were hastily recalled to active service. The Admiralty Yacht, retaining her existing forward single 4.7s, had the additional after accommodation removed, shipped a single 3 inch HA in 'X' position, and went through the war as an escort, while *Stork* was fitted out with three twin 4 inch to conform with *Bittern*. Later, *Stork* lost her

'B' mounting—perhaps to give better access to her 'Split Hedgehog'; and, as a matter of interest, it was *Enchantress* which carried the prototype of this weapon.

The 'Egret' class followed, and again comprised three ships, all launched in 1938. They were a few feet longer than the 'Bitterns', had slightly more powerful two-shaft geared turbines, and a nominal maximum speed of just over 19 knots. The comparatively new Rangefinder Director/Fuze-Keeping Clock/Admiralty Fire Control Clock set-up was available, linked to the twin 4 inch, and the armament pendulum swung heavily in favour of this calibre. The 'Egrets' had four of these mountings in the conventional A-B-X-Y positions, backed up—rather weakly—by a centreline quad .5 inch Vickers. The armament was thus somewhat unbalanced and, fairly early in the war, 'X' 4 inch was replaced by a quad 2 pounder pom-pom to improve close range defence. A little later, the Vickers was removed. Single Oerlikons were added on a gundeck at the break of the fo'c'sle deck and on the bridge wings. Finally, these four 20 mm guns were replaced by single 40 mm Bofors. Note particularly that it was 'X' mounting which was removed in favour of the pom-pom, and not 'Y'. Of this class, only *Pelican* survived the war, and her distinctive layout will be shown in Part 2.

The original 'Black Swan' class

The 'Black Swan' class proper came next, but only the name ship and *Flamingo* were afloat at the outbreak of war in 1939. As soon as this conflict started, the building programme of the 'Black Swan' class slowed down because the ships were in competition with many others for technical equipment and especially turbine blades. The marked shortage of the latter was largely instrumental for the switch to reciprocating-engined escorts, as has been recounted in previous articles.

The first four ships for the RN were built to the original design, but the position of the quad pom-pom was transposed from the subsequent arrangement in *Pelican*. The 2 pounder was now sited on the quarterdeck with a 4 inch in 'X' position super-firing over it. A quad 0.5 inch Vickers was mounted abaft the searchlight platform, as before.



Black Swan in 1945. She has twin Oerlikons in the bridge wings, 'sided' single Oerlikons on a gundeck at the break of the fo'c'sle deck and a quad pom-pom on the quarterdeck. Notice the absence of a close range gundeck immediately abaft the funnel (Imperial War Museum).

The first two ships for the RIN conformed to this layout except that in their case, the quad was omitted from the quarterdeck, possibly to reduce the maintenance load on the ship's staff. This group of six vessels were recognisable from their successors by the absence of a close range gundeck immediately abaft the funnel.

The next group was of seven repeat 'Black Swans'. Five were for the RN (all had bird names beginning with 'W') and a second pair were added for the RIN. By this time, war experience had shown that the quad 0.5 inch Vickers was totally inadequate, and it was omitted from the revised weapon layout. Three twin 4 inch HA were shipped in 'A', 'B' and 'X' positions, a close range gundeck was built athwartships abaft the funnels. Close range gun positions were designed into the bridge wings: the intention being to fit further close range weapons on the quarterdeck, from which the quad pom-pom was again omitted.

The last of this class was the RIN *Godavari*, launched at Thornycroft's Southampton yard in January 1943, by which time several of the 'Modified Black Swans' were already in the water. The building programme of the second group 'Black Swans' and the first of their modified successors, ran in parallel and from



HMS Enchantress, completed as an Admiralty Yacht, was altered during her building. Designed to mount four 4.7 inch guns, she commissioned with three, but quickly lost No 3, which was sited just forward of her pole mainmast (Wright and Logan).

an appearance point of view, at least, it was very difficult to tell the one from the other.

The pre-war ships had a tripod foremast and were built with a tall tripod main as well. This arrangement, common to all warships, was necessary to conform with the International Regulations regarding lights. All powered vessels over 150 feet in length were obliged to show a white light on each mast, the after light being at least 15 feet higher than its partner. Since the foremast in a warship crossed yards at a height sufficient to make flag signals clearly visible from them, it followed that a warship also had to carry an unnecessarily tall mainmast, solely to conform to the Regulations. This so severely restricted the 'sky arcs' of the after weapons that, during the war, the mainmasts were at first reduced in height and finally dispensed with altogether. The main radio 'roof' aerial, previously slung between the fore top-yard and the main topyard was then led to the familiar low-set 'goalpost' frame, or an equivalent stump mast.

Most of the early ships had their tripod foremasts replaced by the stronger lattice structure to carry additional radar, and the later units were so equipped from building; but *Pelican* retained her original mast until she was scrapped.

When the Surface Warning Radar Type 272 was fitted throughout the Fleet, those ships with a tripod foremast had a lattice pylon built just forward of 'X' 4 inch, to carry the aerial 'lantern'.

All the allied classes had a good deal in common in their general appearance. The fo'c'sle was short, with a horizontal windlass style cable-holder separated from 'A' gun by a conventional breakwater. In some ships, particularly the Indian vessels, the breakwater was continued to the splinter shield along the edge of the gundeck. A blast screen protected 'A' gun's crew from the effect of 'B' gun immediately above it. Abaft the second twin 4 inch there was a small crew's shelter. In RN ships the MF D/F aerial projected above it but in the RIN this aerial, rather unusually, was carried on a foremast platform. Next came a small four-square bridge, with sponsons for close range guns on each side and a Mk III (later Mk IIIW) R/F Director on its after end. From the bow to the bridge rear, there was a marked flattening of the ship's side at the deck-edge giving a faint 'knuckle' appearance.

The mast was fitted behind the bridge, followed by the rather small funnel, slightly raked, but with a top parallel to the waterline. It was pretty well dead amidships, giving the ships—with their short fo'c'sle and almost straight stem—a rather ungainly appearance. This area of the upper deck functioned as the boat-deck. There were many variations in the allocation of boats but a fairly typical arrangement was a whaler in screw-jack davits abreast the funnel on each side, a motor cutter further aft on the starboard side, balanced by a 16 foot motor dinghy to port (both in radial davits) and a 14 foot dinghy stowed on the deck under one of the larger boats. In this general area, there were four



The name-ship of the 'Egret' class exhibits the same characteristics as Bittern but has the fourth 4 inch mounting on the quarterdeck. Notice the searchlight and machine gun platforms in this 1938 photograph (Wright and Logan).

mercantile-style ventilators from the machinery spaces below. The initial design had included a centreline searchlight platform and a centreline position for the quad Vickers, fitted in that order, abaft the funnel, but both these were removed from the early units and excluded from building in later vessels.

Beyond the boatdeck, the fo'c'sle deck broke downwards to the quarterdeck with 'X' gun on an extension. A semi-circular bulge increased the width of the gundeck in way of the mounting to provide space for the loading numbers of the gun's crew. The quarterdeck had the usual DC throwers and over stern rails terminating in a 'V' shaped transom. Depending on the actual class there may or may not have been a weapon of some kind in 'Y' position. From the model-maker's point of view, the very early ships are of special interest in that they had wooden decks and 'Black Swan', at least, retained hers throughout her lifetime.

During the war all had active careers and *Black Swan's* in particular embraced the early Norwegian campaign through to the Korean war. There, she was Leader of the 3rd Frigate Flotilla, with *Alacrity*, *Amethyst*, *Hart* and *Alert*—though the last named was, in fact, the C-in-C's Dispatch Ship and was rarely in company. Despite her age, *Black Swan* still had the edge on her younger sisters for speed and ten years after her launch could still wind up to 19 knots.

The modified 'Black Swan' class

This class comprised a planned 29 ships, including yet another pair for the RIN but the cessation of hostilities overtook their building programme. Five were cancelled, and several of the

Continued on next page

Class Lists (In Order of Launch)

Ship	Launch	Pennant No.
'Bittern' Class		
Enchantress (ex-Bittern)	Dec 34	L56
Stork	Apr 36	L81
Bittern	July 37	L07
'Egret' Class		
Egret	May 38	L75
Auckland (ex-Heron)	June 38	L61
Pelican	Sept 38	L86
'Black Swan' Class (EXCEPT *)		
Flamingo	Apr 39	L18
Black Swan	July 39	L57
Erne	Aug 40	U03
Sutlej (RIN)	Oct 40	U95
Jumna (RIN)	Nov 40	U21
Ibis	Nov 40	U99
Woodpecker	June 42	U08
Cygnets *	July 42	U38
Wren	Aug 42	U28
Whimbrell	Aug 42	U29
Chanticleer *	Sept 42	U05
Kite *	Oct 42	U87
Wild Goose	Oct 42	U45
Starling *	Oct 42	U66
Crane *	Nov 42	U23
Narbada (RIN)	Nov 42	U40
Woodcock	Nov 42	U90
Pheasant *	Dec 42	U49
Godavari (RIN)	Jan 43	U52
Modified Black Swan (AND * ABOVE)		
Redpole	Feb 43	U69
Maggie	Mar 43	U82
Kistna	Apr 43	U46
Amethyst	May 43	U16
Cauvery	June 43	U10
Hart	July 43	U58
Lapwing	July 43	U62
Lark	Aug 43	U11
Hind	Sept 43	U39
Mermaid	Nov 43	U30
Peacock	Dec 43	U96
Modeste	Jan 44	U42
Nereide	Jan 44	U64
Alacrity	Sept 44	U60
Opossum	Nov 44	U33
Actaeon	July 45	U07
Snipe	Dec 45	U20
Sparrow	Feb 46	U71

NOTES (i) Flag L changed to U in 1940.
(ii) Flag U changed to F in 1948, when ships were reclassified as frigates.
(iii) Pre-war pendant numbers were not worn on ship's side.
(iv) In the 1948 revision, most ships retained their original number, but some were prefixed by an extra digit: eg, Crane F123, Amethyst F116, Cauvery F110.

'Black Swan' class—continued

final run were not accepted into service until well after the end of the war.

There was a further fractional increase in overall dimensions, but the all-up equipment weight had also increased to give them a standard displacement of 1,350 tons, 100 tons in excess of the 'Black Swans'. To compensate, their engine power was increased by 700 SHP to 4,300, for a nominal 20 knots, but they rarely exceeded 18 at sea.

The extra displacement of the 'Modifieds' resulted from their having the three 4 inch mountings adapted for Remote Power Control: their first-fitting lattice foremasts; and their heavier close range armament. To increase their stability as gun platforms in a seaway, this group had Denny-Brown ship stabilisers. These took the form of fins which could be extended by powerful hydraulic rams and projected from the ship's side at bilge-keel level, roughly abreast the bridge. The stabiliser fins rotated about their axes, rather like aircraft ailerons, and were controlled by a master gyroscope with a power follow-up. Working at opposite angles, they tended to lift one side of the ship and depress the other as she rolled and were remarkably effective in some, but not all, sea conditions. The system also had a manual control on the bridge by which the fin angle could be altered at will, so that it was actually possible to 'roll' the ship when she was under way in dead-calm water. To the uninitiated observer this was a most startling sight and caused much unkind comment on the seaworthiness of the particular vessel. However, this criticism was completely misplaced for they were excellent little craft in every way and much liked by those who served in them.

Although otherwise of near-identical profile to that of their earlier sisters, the ships of this final class were best recognised by the large close range gundeck abaft the funnel, for although their designed armament was to have included six power-operated twin Oerlikon mountings, by the time the late arrivals were in service, the heavier calibre 40 mm weapons had become available.



Woodcock was the last of the RN 'Black Swan' class, proper, but was virtually identical by outward appearance to the 'Modified' type. In 1943, when this shot was taken, she was painted in the Western Approaches white/light blue scheme designed by Peter Scott. She is well armed with single Oerlikons (stowed vertically) on the bridge wings, a sided pair of twin Oerlikons on the quarterdeck and two twin Bofors 'Hazemeyer' mountings on the substantial gundeck abaft the funnel, that so characterised the later ships (Imperial War Museum).

Typical examples of the many variations will be tabulated in Part 2.

Ships which were completed after the war sometimes found themselves rather under-gunned in the close range sense but underwent a hasty revision when the Korean war broke out in 1950. HMS *Alacrity*, for example, was commissioned with single Oerlikons abreast the bridge and a pair of twins abaft the funnel, leaving a wide, clear quarterdeck, useful for ceremonial or recreational purposes. Soon after the Korean trouble started, she was refitted in Singapore, emerging with single Bofors in place of the twin Oerlikons, a second pair of similar mounts on the quarterdeck, extended depth charge rails and 'parbuckle' stowages alongside her four DC throwers.

Meanwhile, three ships were refitting and modernising in the UK, destined in due course to relieve the 3rd Flotilla in the Far East. These three, *Opossum*, *Modeste*, and *Crane*, ended up almost as floating gun batteries, for in addition to their three



Top: Only ship of the 'Bittern' class to be completed as an escort sloop was Bittern herself. To reduce the need for stays and shrouds she was given a tripod mainmast, but still had a pole foremast in 1938 (Wright and Logan).

Above: By contrast, white-painted HMS Fleetwood was the last of the 'Grimsby' class from which the later escort sloop classes were developed. Here, in 1938, she is specially armed with two twin 4 inch HA mountings and the prototype Rangefinder Director (Wright and Logan).

powered twin 4 inch, they had single powered Bofors abreast the bridge, a pair of twin Mk 5 Bofors abaft the funnel, a further pair of singles on the quarterdeck, making eight Bofors in all, as well as the full outfit of depth charges and a 'Split Hedgehog' on 'B' gundeck. They were quite well off for radar, too. The lattice mast carried Type 293 for gunnery direction, Type 291 for early warning, and the IFF 'candelabra'. Those who retained their 'Hazemeyers' also had the Type 282 sets linked to the control of those mountings.

After the Second World War, the classes served all over the globe. *Nereide* and *Actaeon* spent a long time in South African waters, another flotilla ran in the Mediterranean, and others were stationed in the Persian Gulf, as well as those in the Far East, to which reference has already been made. Mostly, they performed their duties unobtrusively, but some achieved fame for one reason or another. HMS *Starling* was the command of that legendary U-Boat killer, the late Captain Walker (who had previously commanded *Stork*). *Magpie* was the first command of HRH the Duke of Edinburgh, when he was a serving officer; and most readers will have heard of the adventures of *Amethyst* on the Yangtze, in 1949.

Continued on page 155

Western Approaches Command

36th Escort Group (Sept 1941)

Stork
Deptford
Rhododendron
Marigold
Convolvulus
Penstemon
Gardenia
Samphire
Vetch

Class
'Bittern'
'Grimsby'

'Flower'

2nd Support Group (April 1943)

Starling
Wild Goose
Wren
Woodpecker
Magpie
Nairana
Activity

'Black Swan' and
'Modified Black Swan'

Escort Carriers

2nd Support Group (May 1944)

Starling
Wild Goose
Wren
Loch Killin
Loch Fada
Dominica

'Loch'
US-built 'Colony'

Special Fast Group (for troopship convoys, etc)

Wolverine
Keppel
Malcolm

Converted destroyers

THERE is no need at all for a layout that has kit-built models to look stereotyped, and all that is needed is a little imagination in the use of these kits, preferably combined with close observation of the prototype railways.

My latest model is based on a weed-spraying unit used on the New Zealand Railways. The original is for 3 ft 6 inches gauge but I built mine to standard OO gauge. So if your branch line is becoming overgrown with weeds why not do your track maintenance crew a favour by building this weed-sprayer for them?

I used parts from four Airfix kits for this unit, but there are a large number of useful parts left over for further conversions so it is not an expensive model.



Colour scheme used for the Landrover weed-sprayer unit was all yellow with black interior. Wheels had yellow outer and black inner surfaces, with silver on all running surfaces. This is a most attractive rail unit for any miniature works yard.

Building a Weed-Spraying Unit

ATTRACTIVE WORK-TRAIN ACCESSORY BY MICHAEL ADDRESS

The Landrover is from the Airfix Bristol Bloodhound kit and is assembled exactly as in the kit instructions except for the wheels, which are built up from Parts 16-19 of the Airfix 88 mm Gun and Tractor kit.

Cut four discs of 15 thou thick plastic card 10½ mm in diameter. For each wheel cement one of these discs to the back of the kit parts (16-19), thus forming the flanges. Using the hole in each part as a guide, make a hole through its backing disc also; I used a fine round needle file to do this. Paint the wheels at this stage, before fixing to the axles. They can then be cemented to the axles, taking care to keep them true and square.

Use a piece of track, set the vehicle on this and adjust the wheels to the correct gauge before the cement sets. In fact, the gauge should be just about right and will need little or no adjustment.

The Landrover is now complete except for painting and the towing bar which will be added later.

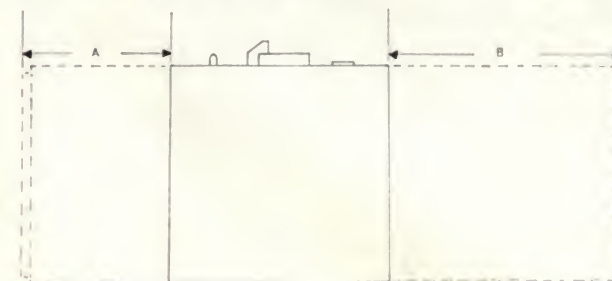
The tank wagon is built up from the 16 ton Mineral Wagon and the Class B Tank Wagon. The chassis is from the Mineral Wagon kit and assembly is as the kit instructions, Section 1 (Brake, Underframe and Wheel assembly) and 2 (Buffer and Coupling assembly) except that parts 18-23 inclusive are not used. Paint the chassis parts before assembly; all are matt black except for the buffer faces and running surfaces of the wheels, which are silver.

The tank for the weedkiller is made by shortening the tank of the Class B Tank Wagon. Cement the two tank body halves (Parts 1 and 2) together and allow time for the cement to set firmly. Then, using a fine razor saw and taking great care to keep your cuts true and square,

cut a length from each end as shown in Fig 1. Smooth out any slight irregularities of the cut surfaces with a fine file. At this stage strengthen the joins by cementing some scrap pieces of thin plastic card across their inner surfaces. The tank ends (Parts 3 and 46) can now be added. No ballast weight is needed since the model is a static one. As there are no longer any flanges at the ends of the tank body halves, care must be taken to ensure that the ends are accurately fitted. Only one of the catwalk platforms is used and the recesses in the tank for the other platform should be filled in with plastic filler at this time.

Note that if you hold the tank so that the tank end with the two holes for the end valve (that is tank end part 3) is to your left, the catwalk platform will be fitted to the front of the tank and the holes to be filled in are those at the rear. One of the holes for the sign plates is included in the shortened tank and this should also be filled in at this stage. When using filler, apply a little excess

Continued on page 153



A: 20 mm
B: 31.5 mm

Drawings keyed to references in text.

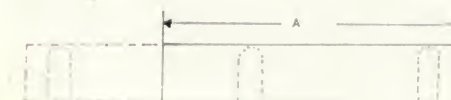
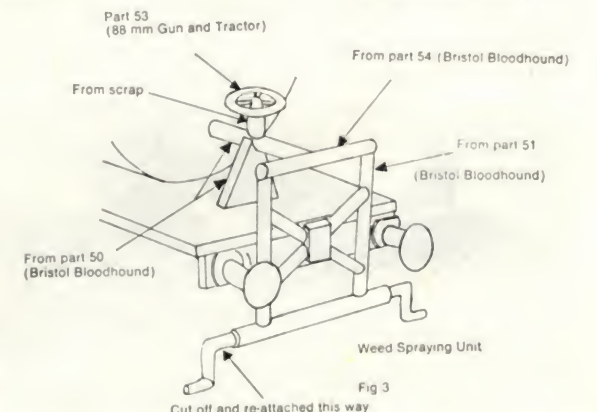


Fig. 1

Fig. 2



Cut off and re-attached this way



Vought Corsair

A detailed coverage for
aircraft modellers

BY ALAN W. HALL

Part 2: Aircraft in USN, USMC,
French and other services

THE F4U Corsair was one of the few major types employed in World War 2 that did not change its external shape to any substantial degree during operational service. The fact that this aircraft served for longer than many of its contemporaries did not alter things very much and the wings, main fuselage section and tail unit were common to most versions. Minor alterations did occur in the shape of the cockpit canopy, wing tips in the case of the RN version and the engine nacelle. Night-fighter versions, of which there were two, had additional radar pods mounted on the starboard wing and later marks had four-blade rather than three-blade propellers. Four 20 mm cannon were exchanged for six .50 calibre machine guns in later variants.

The camouflage and markings for Corsairs, as with most other US Navy aircraft, conformed to the well-known changes in standard USN colour schemes. Unlike their USAAF contemporaries, the Navy and Marine Corps did not go in for the delightful tail, wing and nose colourings so favoured by the bomber and fighter groups.

Bearing these two things in mind, there are few really major conversions that can be made to the three 1:72 scale Corsair



The prototype XF4U was almost an entirely different aircraft from those which followed. It had a different fuselage length and tail unit. The cockpit was similar to the F4U-1 and so were the wings. Note that the fuselage was silver overall and so were the underwing surfaces. The top of the wings and an area stretching over the leading edge were, however, in yellow.

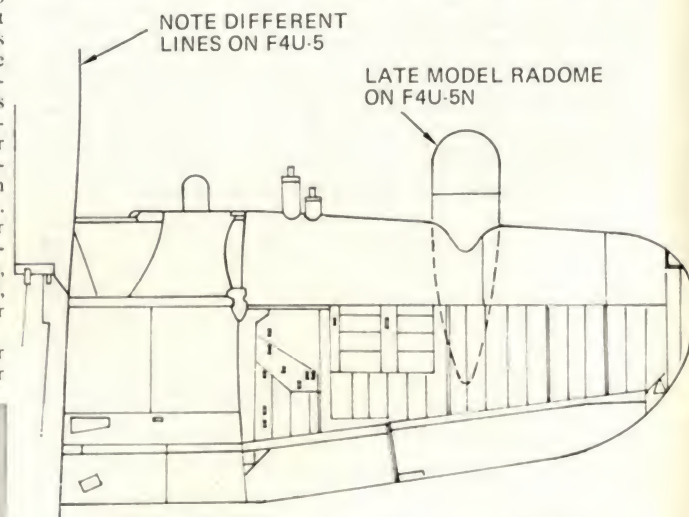
Coral dust and palm trees. Three Corsair F4U-1As with bombs slung under the centre section prepare for another sortie.

models on the market. I dealt with the variations applicable to the Royal Navy aircraft in the September issue. Most of them, apart from the change in wing tip design, are suitable for the US Navy versions. The F4U-1, for example, which had the earlier type of canopy with its extensive framing, was dealt with and mention was also made of the F4U-4 which again had an altered canopy. These were referred to as the Corsair I and IV under RN designation.

The main alterations which can be made are in the night-fighter aircraft of the F4U-2 and F4U-5N variants. The radar-pods on each aircraft are basically the same, differing only in external shape so my remarks apply to both.

Night-fighter conversions

Neither version is too difficult for the beginner to make. I took a piece of dowel rod $\frac{1}{8}$ inch in diameter and approximately $1\frac{1}{2}$ inches long. This was shaped into a streamlined form and the underside wing aerofoil section was then cut into the top

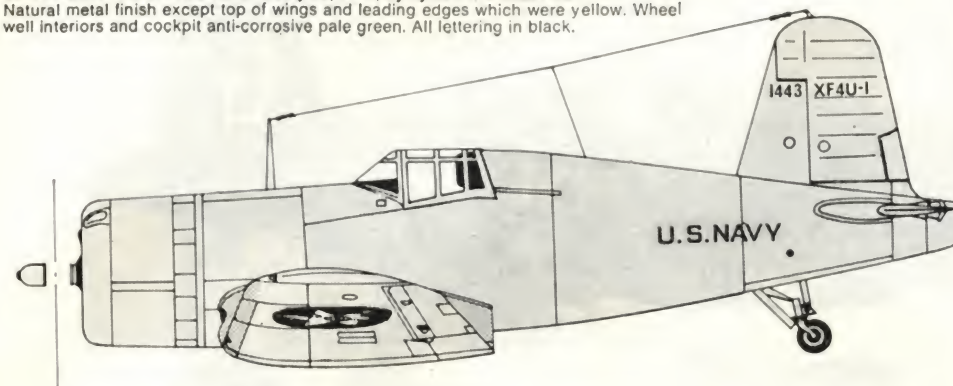


side of the near completed pod. Using a drill, I cut away the leading edge of the wing at the point where it joined the pod and then stuck one part to the other. The whole area was then given a liberal coating of body putty and set aside to dry. An alternative method would be to actually cut away the underside of the wing itself and let the pod into the gap that remained. This is possibly the stronger method but involves complicated cutting.

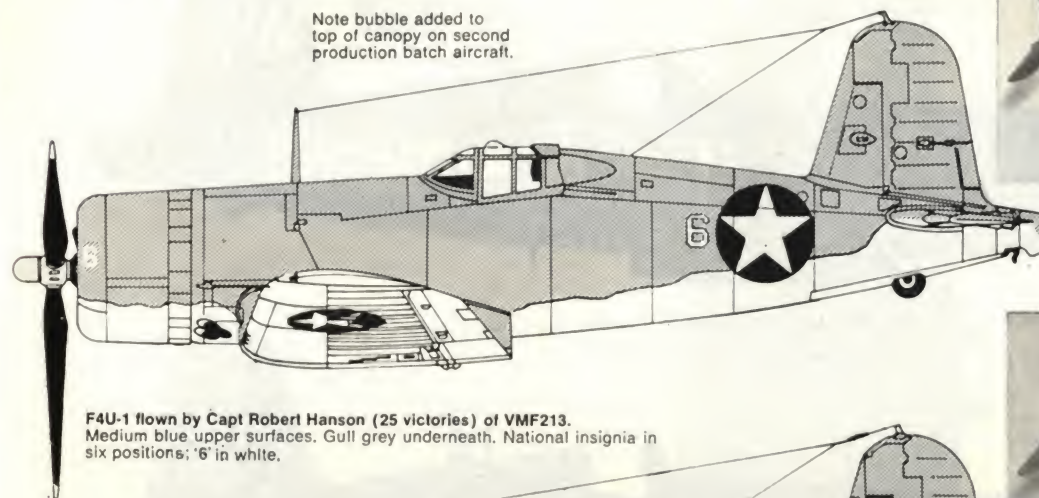
Continued on page 136
Drawings on next three pages

AIRFIX magazine

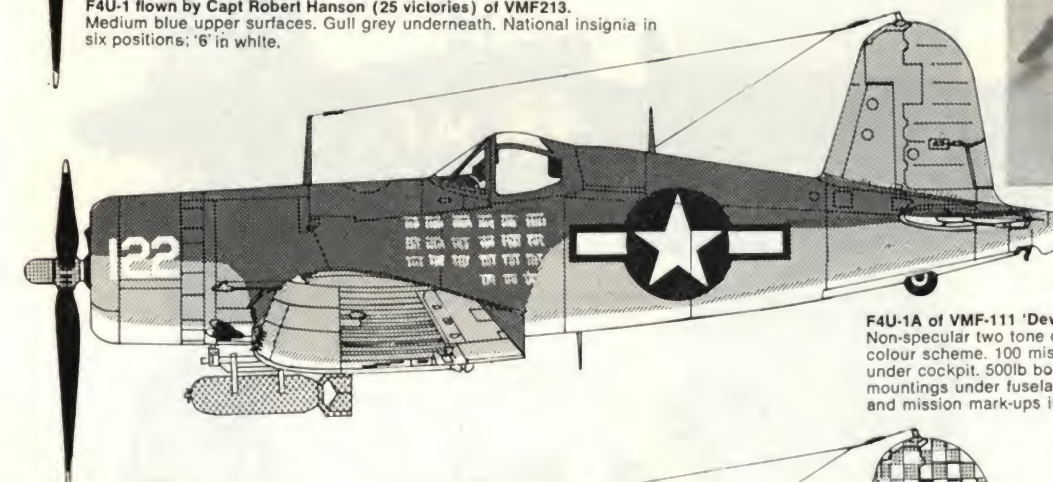
XF4U-1 BuAer No 1443 First flown May 29, 1940, by Lyman A. Bullard Jnr. Natural metal finish except top of wings and leading edges which were yellow. Wheel well interiors and cockpit anti-corrosive pale green. All lettering in black.



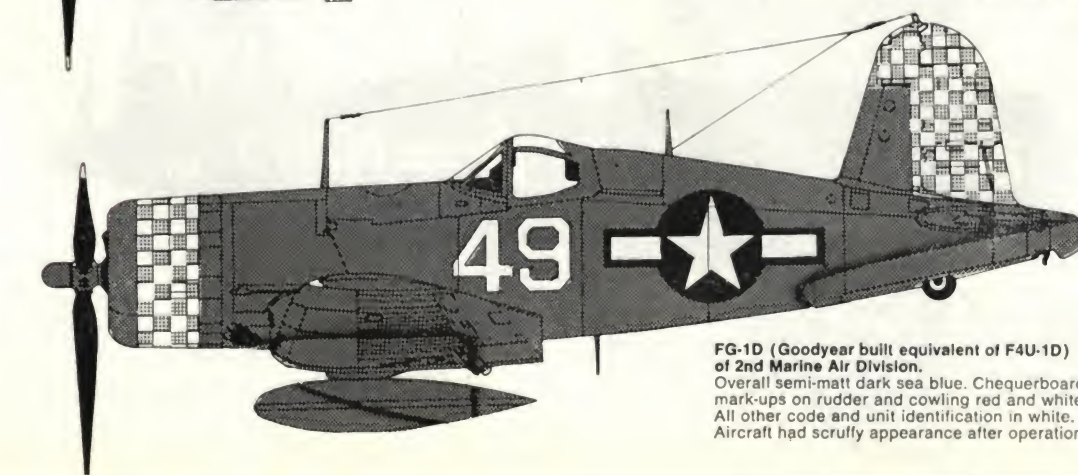
Note bubble added to top of canopy on second production batch aircraft.



F4U-1 flown by Capt Robert Hanson (25 victories) of VMF213. Medium blue upper surfaces. Gull grey underneath. National insignia in six positions; '6' in white.



F4U-1A of VMF-111 'Devil Dogs'. Non-specular two tone off white Pacific-colour scheme. 100 mission markings under cockpit. 500lb bomb on Brewster mountings under fuselage. Codes and mission mark-ups in white.



FG-1D (Goodyear built equivalent of F4U-1D) of 2nd Marine Air Division. Overall semi-matt dark sea blue. Chequerboard mark-ups on rudder and cowling red and white. All other code and unit identification in white. Aircraft had scruffy appearance after operational service.



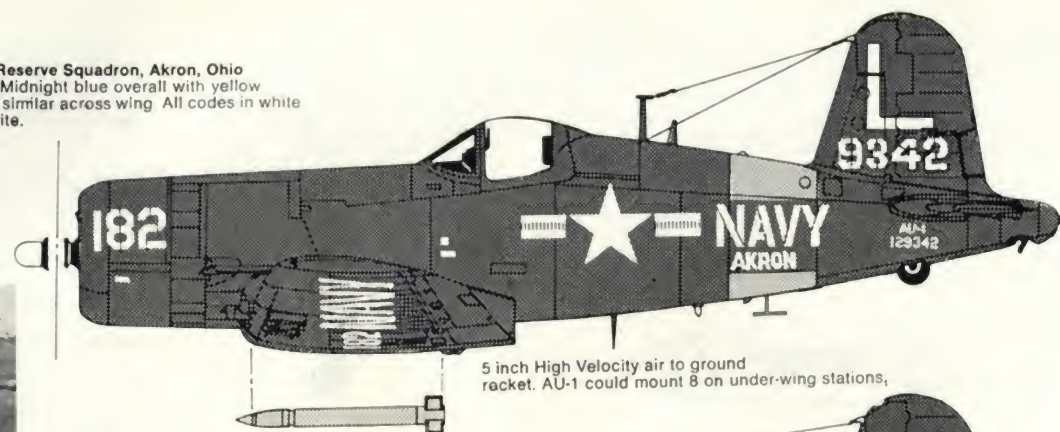
Corsair conversions are relatively easy. Above: Corsair II of 1836 Sqn FAA. Below: Corsair IV of 1842 Sqn, made from details in the September issue.



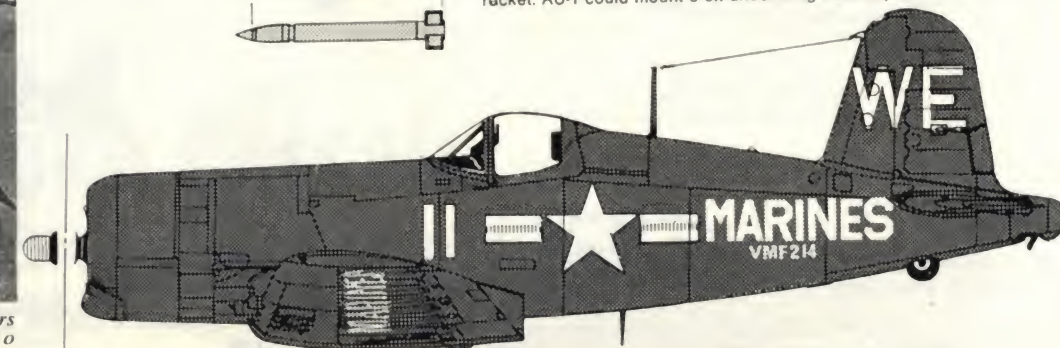
Below: Corsair I of 1835 Sqn. All these models are by Dave Cook.



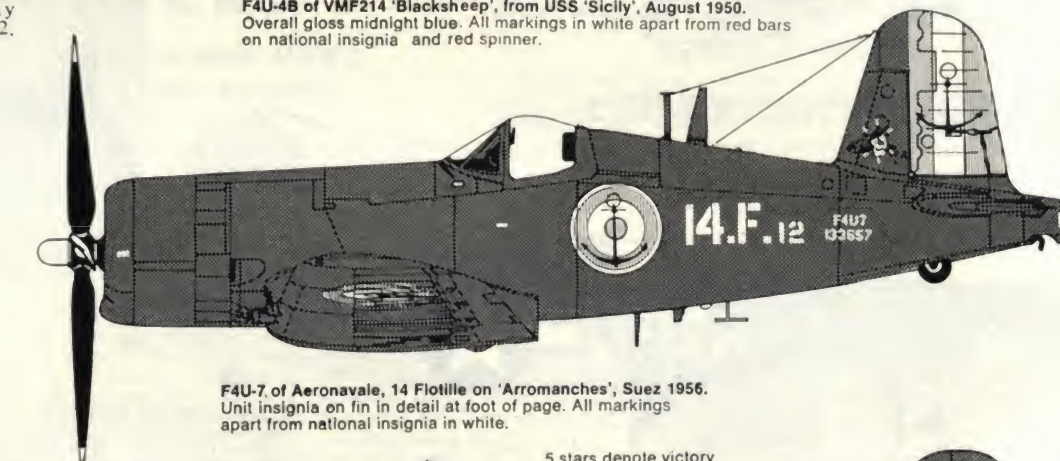
AU-1 of Naval Air Reserve Squadron, Akron, Ohio BuAer No 129342. Midnight blue overall with yellow fuselage band and similar across wing. All codes in white prop spinner in white.



5 inch High Velocity air to ground rocket. AU-1 could mount 8 on under-wing stations.



F4U-4B of VMF214 'Blacksheep', from USS 'Sicily', August 1950. Overall gloss midnight blue. All markings in white apart from red bars on national insignia and red spinner.

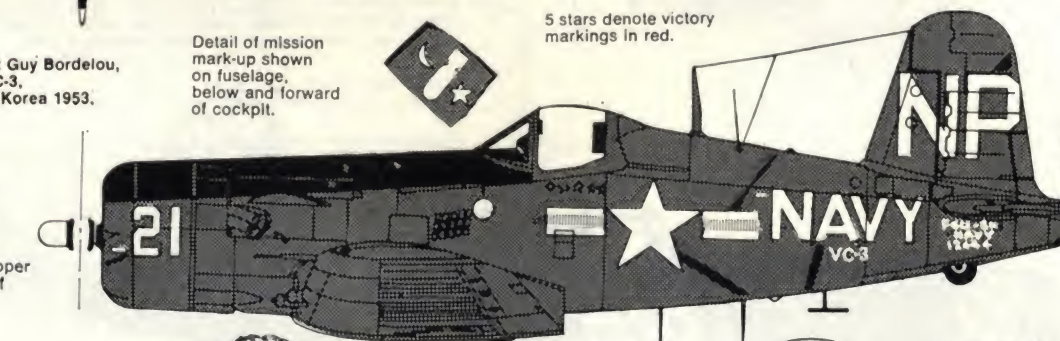


F4U-7 of Aeronavale, 14 Flotille on 'Arromanches', Suez 1956. Unit insignia on fin in detail at foot of page. All markings apart from national insignia in white.

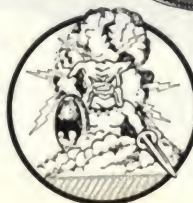
F4U-5N flown by Lt Guy Bodelou, (5 victories) of VC-3, USS 'Princeton', Korea 1953. All national insignia, unit and code markings oversprayed with midnight blue to reduce night identification. Matt black anti-dazzle panel on upper fuselage forward of cockpit.

Detail of mission mark-up shown on fuselage, below and forward of cockpit.

5 stars denote victory markings in red.



Unit badge of VC-3. Bulldog—pinkish tan; lance and shield—silver grey; bat—black; collar—black with yellow spikes; lightning—yellow; cloud—white, blue/green shading; badgeground—horizontal and vertical lines dark blue; outside circle—black.



Enlargement of squadron badge carried below windshield on the above aircraft.

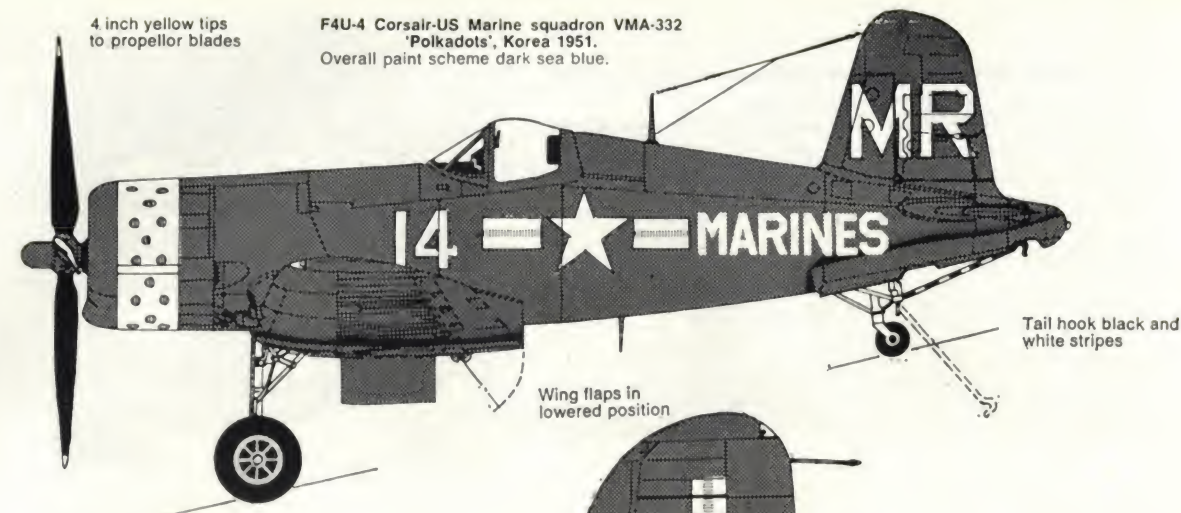


Unit insignia of F14, Aeronavale. On midnight blue background. Face in white with black patch and mouth. Rest in red.

Painted on tail of French aircraft above.

4 inch yellow tips to propellor blades

F4U-4 Corsair-US Marine squadron VMA-332 'Polkadots', Korea 1951. Overall paint scheme dark sea blue.



Tail hook black and white stripes

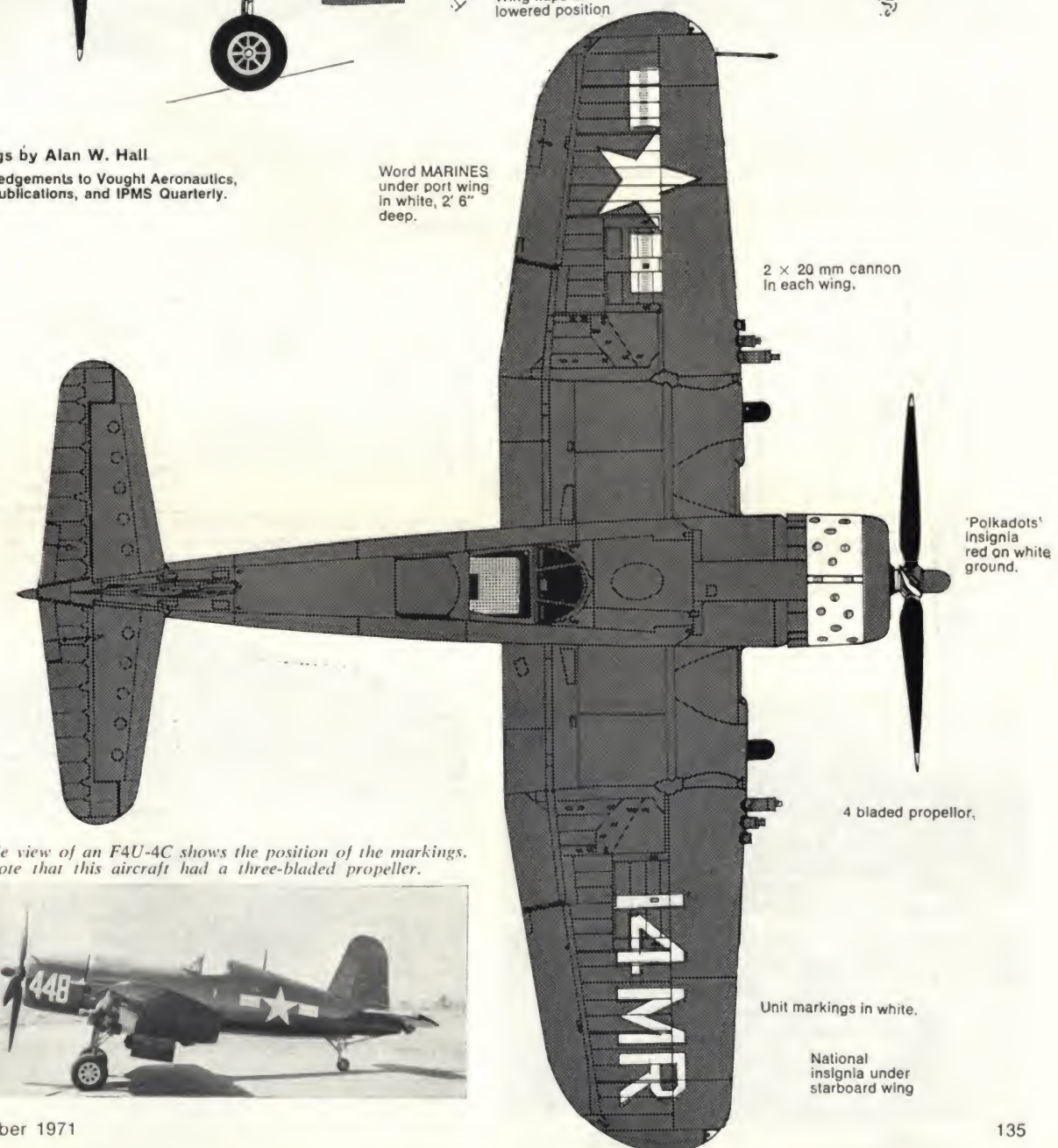
Wing flaps in lowered position

Drawings by Alan W. Hall

Acknowledgements to Vought Aeronautics, Profile Publications, and IPMS Quarterly.

Word MARINES under port wing in white, 2' 6" deep.

2 x 20 mm cannon in each wing.



'Polkadots' insignia red on white ground.

4 bladed propellor,

This side view of an F4U-4C shows the position of the markings. Note that this aircraft had a three-bladed propeller.



Unit markings in white.

National insignia under starboard wing

November 1971

Corsair—continued

The under wing section on the Airfix Corsair is also fairly thick and unless a heavy knife is used there might result a number of bloody fingers and at best a rather mutilated piece of plastic.

Whichever method takes your fancy, give a final rub down with sandpaper after the body putty has been cleaned up. Then a wood filler of dope and talcum powder mixture applied to the wooden section.

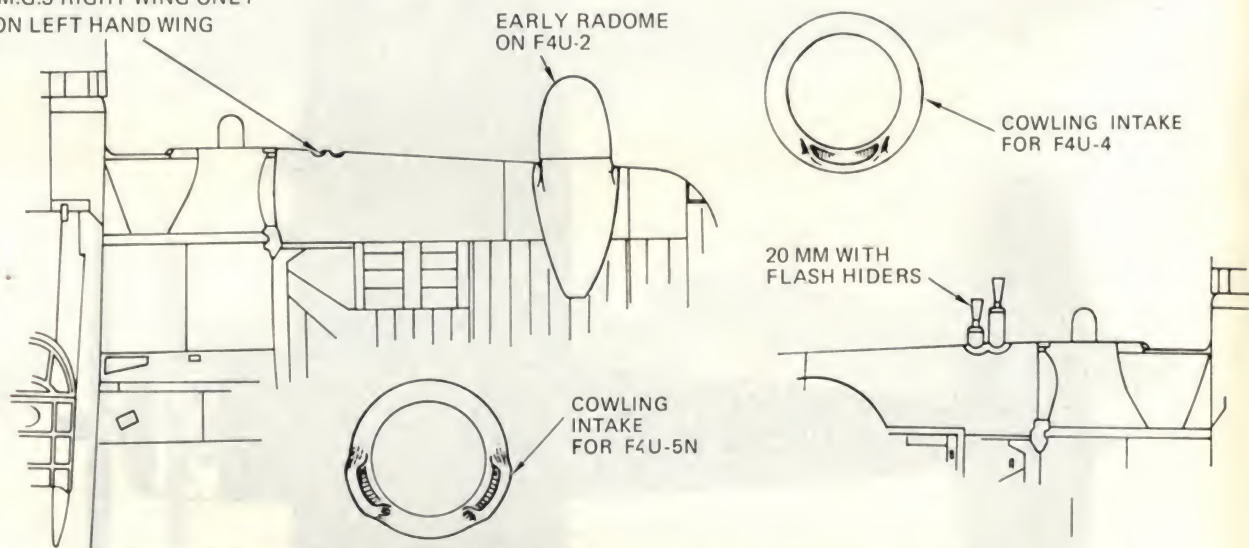
The really difficult part comes with making the later F4U-5N aircraft which had a different intake shape. Note the drawing I have given of the F4U-4 and 5N variants where either one or two air intakes are let into the cowlings. The only way to do this is to make up a new lower half to the part before the engine detailing is finished. I cut off the lower quarter of the engine to start with and then cut back up the sides so that the original plastic was not disturbed too much. Then a piece of balsa was cut and let into the gap. This was re-shaped to the cowlings cross-section and the intakes drilled very carefully into the frontal area. A good coating of filler was needed and this was repeated after the first had been sanded down. I found that a fair amount of strength was needed in this part, hence the need for two coverings of filler material to strengthen the balsa.

It is also worth noting that several of the land-based Marine



Top: F4U-1C Corsair was a little-known version which had the first mountings for four 20 mm cannon. **Above:** Corsairs did much good work in the attack and dive bombing role. Although not an operational machine, this aircraft, an F4U-1D, has a 500 lb bomb slung under the centre section on a Brewster mounting.

- (2) 50 M.G.S RIGHT WING ONLY
(3) ON LEFT HAND WING



squadrons flying Corsairs did not have tail-mounted arrestor hooks. Careful study of photographs will provide the answer to this problem. The Corsair's aerials also differed considerably in their placing and number. Earlier versions of the F4U-1D had two, one before and one aft of the cockpit, whilst the night-fighters in service in Korea had various aerials all over the fuselage.

Painting

The most difficult USN colour scheme to apply is the two-tone blue and off-white of the mid-war period. Here the best way to get anything like an accurate representation is to put the lighter colour on first, working up to the sea blue for the final coat. To get the diffused edge between each shade it is necessary to use an old brush with the bristles cut down to less than 1/4 inch from the metal. By using this brush and the paint almost dry you can stipple the diffused edge, using a touch of either colour

Left, top: F4U-1A flown by Lt Ira Kepford of VF-17 in the New Georgia area where he scored many of his victories. **Below:** A motley collection of aircraft on an Iwo Jima airstrip include various marks of Corsair, Privateers, B-29s and Mustangs.



This F4U-4 Corsair belonged to VMF-214 on board the USS Sicily and flew many combat sorties against the North Koreans. The -4 version of the Corsair was the most used amongst the many available at that time.

until they both merge. The method takes time and needs great patience. The secret remains in the fact that one must keep the brush almost dry and only touch the surface very lightly.

For the Korean period where Navy aircraft were painted dark sea blue overall there should be few problems. Markings are adequately provided in the Dri-dec, Modeldecal, Almark, and Microdecal ranges. Most of these firms supply suitable styles of code and serial digits as well as national markings.

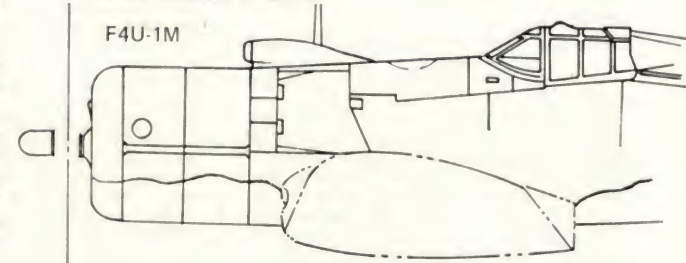
Reference can be found in the inside front cover drawing of Profile No 150 for a post-Korean War training aircraft which had colourful bands added on wings and fuselage. Profile No 47 also deals with Corsairs but here the earlier versions are tabulated. William Green's *Fighters of the Second World War, Series 2* has some useful reference and so does the Aero Publishers book on the Corsair. In the latter, good detail views are provided of cockpit and engine positions as well as some coloured art work and a lot of pictures dealing with the various marks in service. Some civil registered Corsairs in the post-war racing days provide a splash of colour and can be made with a little modification to the basic kit.

Note the difference in the condition between the factory-fresh F4U-7 for the Aeronavale (bottom) and similar aircraft after several years in service. The Corsair survived well into the '60s with the French and saw service in Indo-China and Algeria.

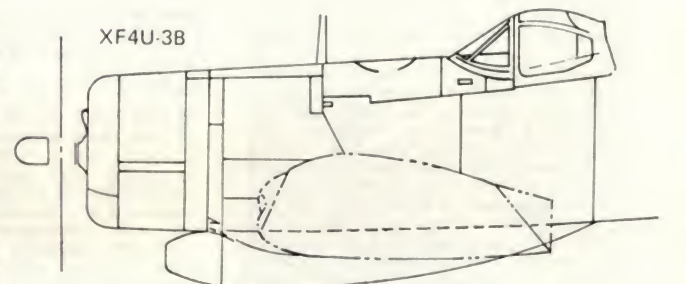


TEST BED FOR WASP MAJOR ENGINE

F4U-1M



XF4U-3B



This F4U-5N night fighter has a radar pod on the starboard wing, flash muzzles on the cannon and additional aerials. Stations for rocket armament are under the wings.



BOOKS for modellers

Unless otherwise stated, books reviewed are normally available from your local bookshop or from hobby shops which sell books for enthusiasts, including the mail order stockists advertising in this magazine. As a last resort they can be obtained from the publishers whose addresses are given when known. In all cases of mail order, however, suitable postage should be added to the selling prices quoted.

MILITARY

Pershing: A History of the Medium Tank T20 Series.

R. P. Hunnicutt.
Feist Publications, 2827 7th Street,
Berkeley, Calif 94710, USA.
\$16.50.

THIS is perhaps the biggest and most detailed book ever devoted to a single tank type. The T20 series included the T26, later M26, the Pershing, and other models in the series, even if they did not see service, played an important part in American AFV development in the World War 2 period. The M48 and M60 of modern times are later derivatives owing much to the T20 series. The T20 vehicles resulted from the need for heavier tanks than the M3/M4 series but their early development history was somewhat checked and delayed due largely to changes in operational requirements and conflicting views between the Ordnance Dept and the services in the field. Thus it was not until 1945 that the Pershing actually saw combat, only then largely due to the German success in the Ardennes Offensive. The author of this book is a meticulous researcher into American AFV history and this very fine book, beautifully produced, is the result of years of work. The book covers the development story in great detail and also combat service in both World War 2 and Korea. There is comparative data between the Pershing, Panther, and Tiger, and an immense section giving the most complete specifications. There are scores of pictures and scale drawings showing every variant with magnificent action photographs and some colour plates for good measure. We were most impressed with this volume, definitely a splendid book in every way. AFV enthusiasts will find it fascinating. At the time of writing there appeared to be no British distributor.

The Churchill.

Peter Chamberlain and Chris Ellis.
Arms & Armour Press, 2-6 Hampstead High Street, London NW3.
£2.

BASED on an *Airfix Magazine* series of some time ago, this book enlarges on the subject considerably with a good deal of material not previously published. The history of the Churchill tank is traced from its first beginnings, right up to the Black Prince and service in the 1960s. There are well over 100 pictures, several drawings and stowage charts, specifications, and WD numbers where known. All variants are described and illustrated, the Churchill being one of the most extensively developed of all British tanks.

German Pistols and Revolvers, 1871-1945.

Ian V. Hogg.
Arms & Armour Press, 2-6 Hampstead High Street, London NW3.
£4.95.

ENCYCLOPAEDIC in its coverage, this volume is in a similar format to the large size tank books put out by the same publisher. The weapons are covered alphabetically with maximum size illustrations, detail views, full histories, data, and component views. Appendices cover manufacturers' codes, ammunition marks, proof marks, and a large section on ammunition in which the rounds appear to be reproduced actual size. There is a most interesting final appendix dealing with patent applications dealing with the weapons patents. This very neatly produced reference book will find a ready place on the bookshelves of all weapons enthusiasts.

Waffen-SS: Its Divisional Insignia.

C. Beadle and Theodor Hartmann.
Key Publications, 20 Durham Road,
Bromley, Kent.
£4.50.

THIS book will be of vital interest to all interested in the German forces of World War 2. What it does is set out to record every known badge, symbol, and cuff title of the Waffen-SS. These are illustrated in a standard manner throughout, with supplementary pictures, many very rare, showing the insignia being worn. Among interesting rarities illustrated are men of the 'Legion of St George', the British volunteer corps which served the Waffen-SS. The book is bi-lingual throughout. In soft covers it is large format and has 130 pages. As a reference book this is a most useful production, very neatly presented and packed with fascinating material for the enthusiast.

Small Arms Profile 1: Webley and Scott Automatic Pistols.

A. J. R. Cormack.
Profile Publications, Coburg House,
Sheet Street, Windsor.
40p.

THIS new title launches yet another new Profile series, this time for the weapons enthusiast. Like most small arms books this is in a rather catalogue-like format, presenting each model photographically with the descriptive text adjacent. Colour is restricted to a spread of colour photographs and, of course, in terms of shades, gunmetal grey and varnish naturally predominate! We were very impressed with the presentation of this work and look forward to further titles. Some more small arms enthusiasts should be 'born', we imagine, as a result of this series.

GENERAL

Airfix Magazine Annual.

Chris Ellis (Editor).
Patrick Stephens Ltd, 9 Ely Place,
London EC1.
£1.25.

THIS volume is to roughly the same page size as *Airfix Magazine*, and can be imagined as something of a 'bumper number' of the magazine itself. The coverage is similar to the sort of subject featured in the magazine but in most cases at very much greater length. For instance there is a 16 page article by Robert C. Gibson covering flying uniforms and this ought to be very handy for aircraft modellers. Conversion articles are to the fore, with a fine patrol Jeep by Roy Dille in 1:32 scale, and a North African diorama feature by John Sanders, while Freedom Fighter detail is covered by Richard E. Gardner. There is a special beginner's article by Chris Ellis on basic model assembly, and an article by Michael Andress on model photography. In fact the book is very useful for newcomers to the modelling hobby. A couple of articles from the magazine (1963/66 vintage) are also presented in much expanded form, dealing with the Churchill Bridgelay and Me 262 respectively. All in all this book provides lively and interesting reading, plus useful reference material, at a modest price.

AVIATION

Mosquito.

C. Martin Sharp and
Michael J. F. Bowyer.
Faber and Faber.
Paperback edition £2.60.

THIS is a re-issue of the famous book first published in 1967. It is a fascinating book for anybody who is interested in aircraft of the Second World War. Everything is listed, from the design specifications to operational performance and capabilities. The two authors of this book have done the Mosquito and the men who served with her proud, with over 400 pages on the history of one of the most remarkable planes of the war.

The Lancaster at War.

Mike Garbett and Brian Goulding.
Ian Allan Ltd, Terminal House,
Shepperton, Middlesex.
£3.00.

THE first reaction of seeing yet another book on a famous wartime aircraft is one of incredulity that anything more could be squeezed out of a story that it would seem has been written several times already. But that's as far as it goes. Both authors are well-known experts on the development of the Lancaster and have wisely chosen an entirely different sort of production from their contemporaries.

This is not a book full of facts and feats of the aircraft during its service with Bomber Command. It can best be described as a picture book with a number of first-hand stories of Lancaster actions given by air and ground crews associated with the bomber during its heyday. Each one is a gripping account of what went on, told in an easy-to-read manner which compelled the reader to carry on to the next. Several highly

Continued on page 163

AIRFIX magazine

Harvards of the SAAF

Drawn and described by
Dave Becker and Richard E. Gardner

THE first Harvards to be delivered to the SAAF were of the Mk I variety. A small number were delivered in standard RAF dark green/dark earth and yellow, with RAF serials, but were soon repainted in an overall yellow finish with A Type roundels, and black serials on the fuselage in the batch 1301 onwards.

Harvard IIAs started arriving in 1942 and wore the standard finish for these aircraft as shown in Len Morgan's book *AT-6 Harvard* (EX508), ie, natural metal overall with yellow wing bands and A Type roundels. The serial was soon repeated forward of the fuselage roundel as well, on a yellow panel (as on Drawing 1). In addition to these aircraft sent on from RAF Lend-Lease contracts came other Harvards direct from USAAF and US Navy stocks (SNJs) and many of these had initially an overall natural metal finish (Drawing 2).

SAAF Harvard IIAs originally had the standard plywood rear fuselage but they were later replaced by the Mk II type metal rear fuselage. Anti-glare panels were usually matt black or dark green, and dark green was later added to the top surface of the wings as well on many Harvards.

Harvards used for drogue-towing (replacing Northrop Nomads and Fairey Battles) were overall yellow with black diagonal stripes while those used for Standard Beam Approach training had an

SAAF UNITS CURRENTLY OPERATING HARVARD/T-6G

Unit	Base	Representative Serial	Wheel disc colours (from late 1960's)
No 4 Sqn (CF)	AFS Swartkop	7491	Red and white checks
5 Sqn (CF)	AFS Durban	7728	White with dazzle ring
6 Sqn (CF)	AFS Port Elizabeth	7727	Green
7 Sqn (CF)	AFS Ysterplaat	7066	Silver
8 Sqn (CF)	AFS Bloemfontein	7523	Red with white Maltese Cross
40 Sqn (CF)	AFS Dunnottar	7530	Silver with 4 blue segments
FTS (Flying Training School)	AFS Dunnottar	7665	Red or yellow (Flight colours)
AFS (Advanced Flying School) (few aircraft only)	AFS Pietersburg	7458	No particular scheme

Note: Wheel disc colours are not rigidly adhered to. Nos 4 and 40 Sqn now have plain wheel discs.

aluminium finish with dark green diagonal bands on the fuselage and green triangles on the wings (Drawings 4 and 5) several variations being used. Sometimes this scheme was applied over a yellow finish but this was more rare.

As the war progressed, further variations appeared such as yellow outlined serials (Drawing 6), yellow 'serial panel' outlined in black (this panel appearing in various sizes and positions) and other miscellaneous combinations.

Harvards could be seen with mixtures of A or C Type roundels or one or the other and these combinations lasted almost until the 1950s when new colour schemes were standardised.

Until the delivery of Spitfires in 1947, No 1 Squadron had to



Above: Harvard II A 7140 (c/n 88-9646) of 40 Sqn SAAF at Baragwaneth Air Show, August 1970, in current standard colours; 7140 has red wheels. Note 'weathered' serial. Aircraft 7140 was once EX250 in RAF lists and like many others was delivered direct to the SAAF and probably saw no RAF service (Dave Becker photo).

make do with Harvards for training for a period and these were in overall natural metal finish with C and C1 Type roundels, some having yellow code letters (Drawing 3).

During this period, three basic shades of blue could be seen on roundels, ie, Ultramarine, a greyish blue (mainly on A Type roundels) and Indigo (similar to US insignia hue—used on C Type roundels mainly) but there were other variations.

By 1950, a new scheme had been standardised and gradually replaced the motley collection of wartime schemes. Initially D Type roundels were used, but the 'Springbok' roundel became standard soon after. Some aircraft had black serials outlined in yellow but these were soon replaced by the now standardised black-edged yellow fuselage panel. Extra dark sea grey replaced black and dark green on anti-glare panels, and roundels used the standard ultramarine, white, and orange (Drawing 7).

A batch of 30 T-6Gs were delivered in the mid-fifties and were recognisable by their spinners (discarded in the early sixties),



Above, left: Badge of CFS Dunnottar (now moved to Langebaanweg). Above, right: Badge of CFS Pool (dark green).

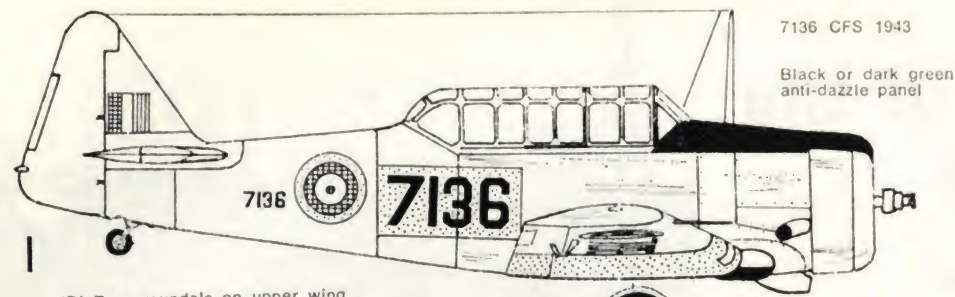
D/F loop housings, and clear vision canopies. Serials 7699 to 7728.

Fixed forward aerials on the Harvards were replaced by whip aerials and in the late fifties rocket racks were fitted to squadron machines. In 1957, 'castles' started appearing, replacing the roundels, and many aircraft received blue anti-glare panels for a period.

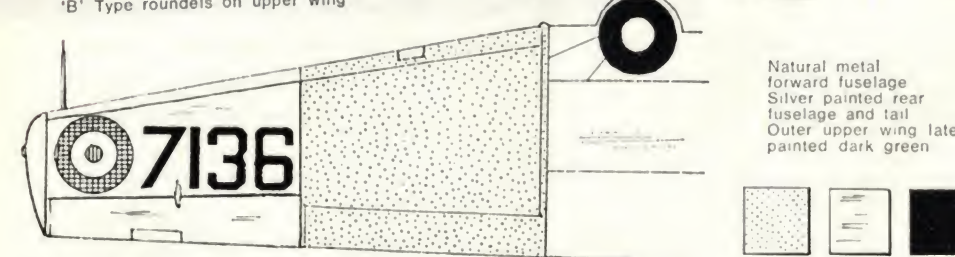
'Blaze orange' dayglo started appearing on the Harvards in 1960 in the pattern currently in use today. The 'blaze orange' soon faded, however, and bleached to a pale yellow in the sun, so it was replaced by the currently used 'fire orange'.

Continued on page 149
Drawings on pages 140 and 145

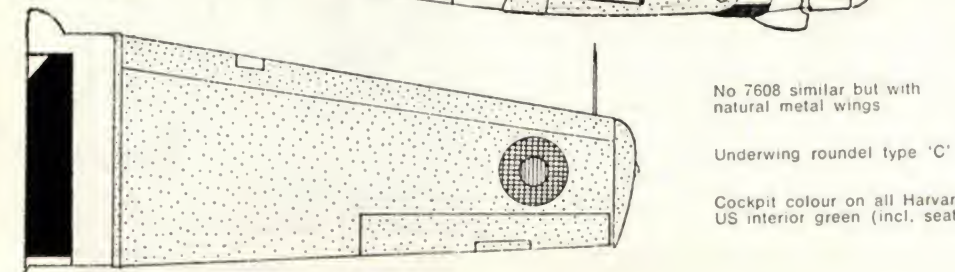
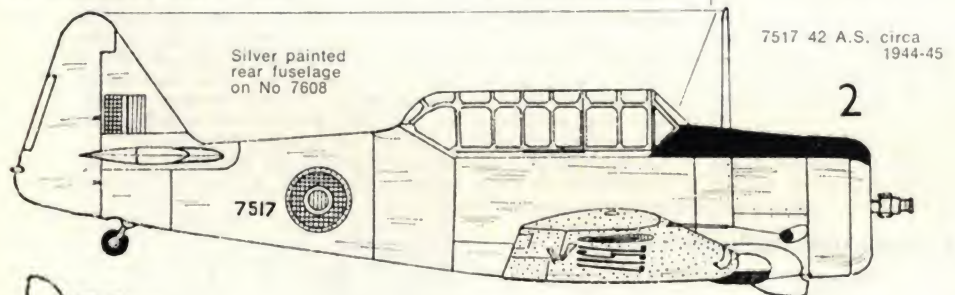
Left, left to right: 8 Sqn badge—red and white, black trim (some aircraft have white background); examples 7385, 7485, all scheme B (silver), white background; 7052 plain background. 7 Sqn (Cape Town) light blue background, gold eagle, dark green tank (later aircraft have black outlining); examples 7333, 7723 (T-6G) scheme B (silver). 4 Sqn (Swartkops) light blue background, black bat, red and white trimmings, black lettering; examples 7140, 7020, scheme B. CFS Dunnottar badge, shown above, had black bird, white feathers, green map of Africa with white edge, yellow key, black ribbon, and yellow lettering.



1
'B' Type roundels on upper wing



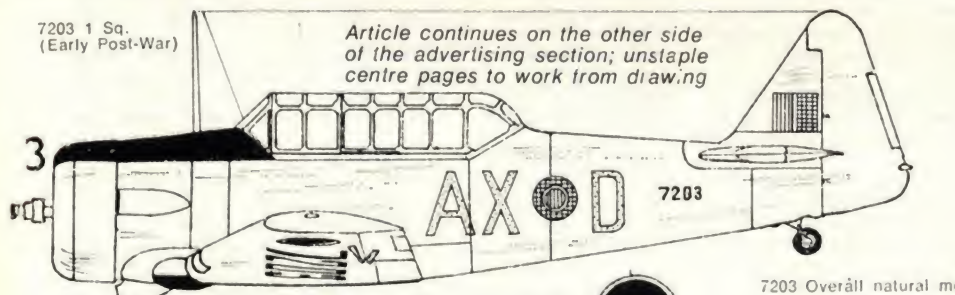
Wingtips sometimes yellow



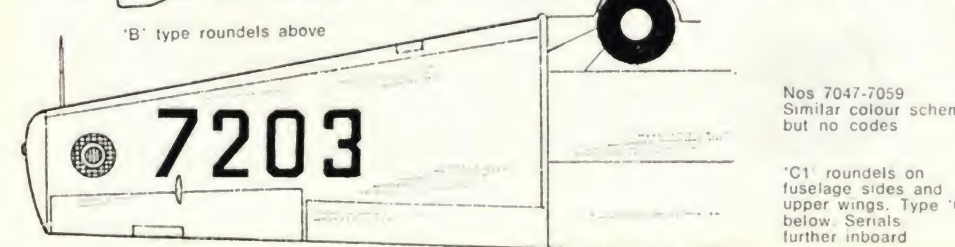
No 7608 similar but with natural metal wings

Underwing roundel type 'C'

Cockpit colour on all Harvards
US interior green (incl. seats)



'B' type roundels above

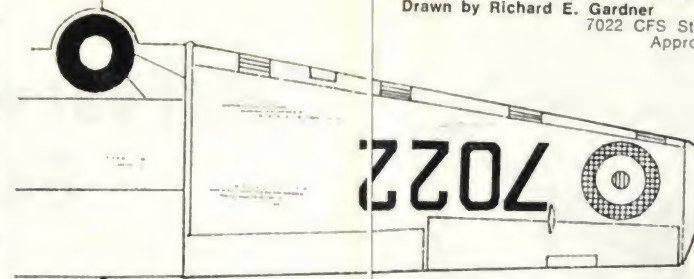


Nos 7047-7059
Similar colour scheme
but no codes

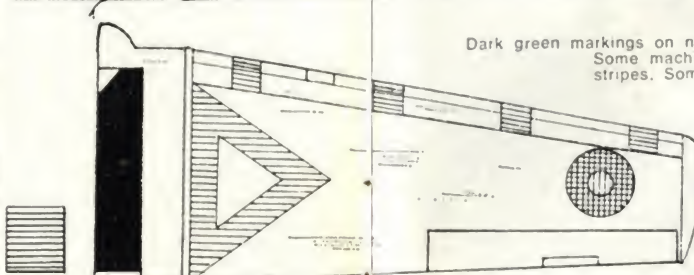
'C1' roundels on
fuselage sides and
upper wings. Type 'C'
below. Serials
further inboard

SAAF HARVARDS 1943-1971

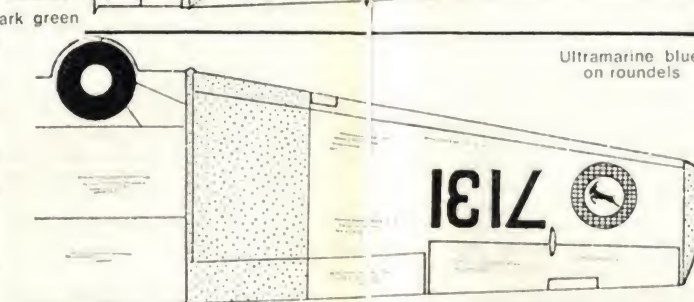
Drawn by Richard E. Gardner
7022 CFS Standard Beam
Approach colour scheme



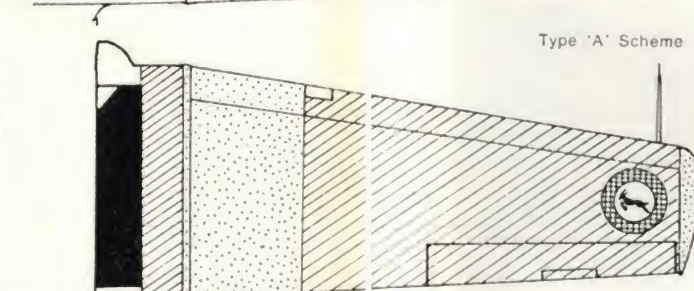
Dark green markings on natural metal
Some machines had 'bottle green'
stripes. Some had stripes on
all-yellow aircraft



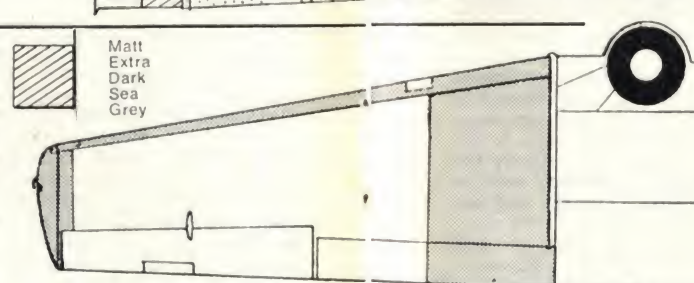
Ultramarine blue
on roundels



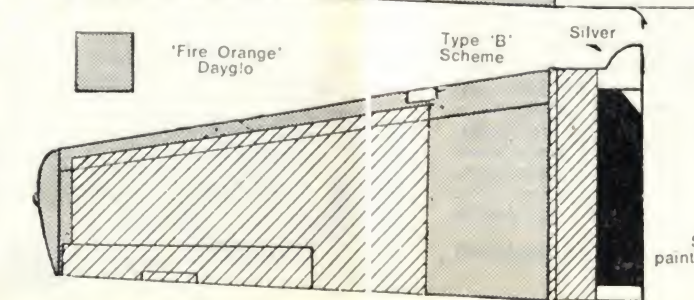
Type 'A' Scheme



Matt
Extra
Dark
Sea
Grey

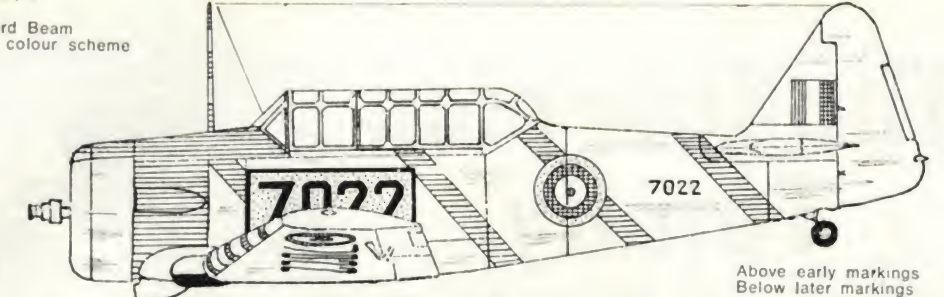


Type 'A' Scheme
Standard for the 50's
Initially with 'D' type roundels

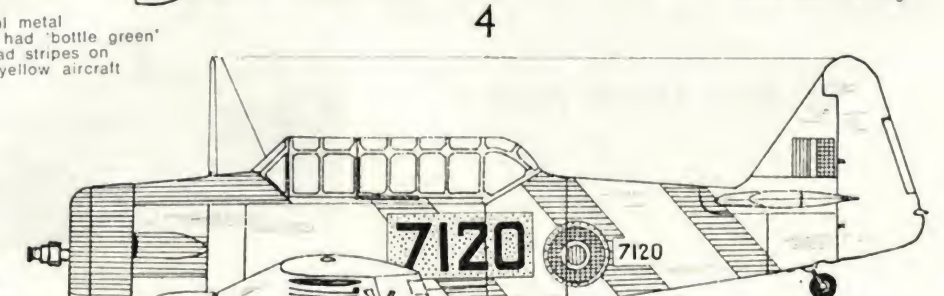


Type 'B'
Scheme

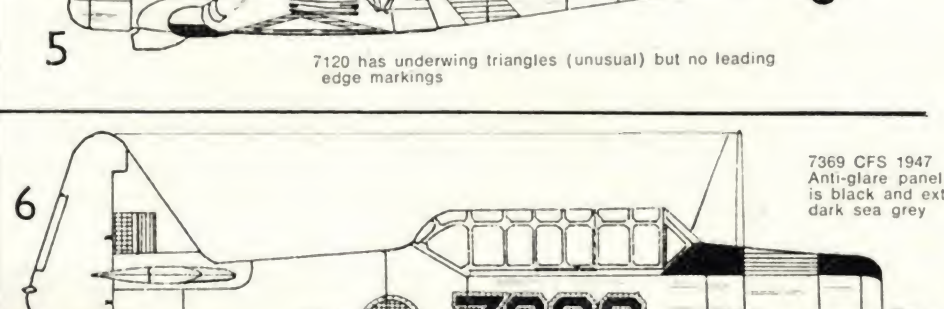
Silver
painted aircraft



Dayglo scheme replaced yellow 1961

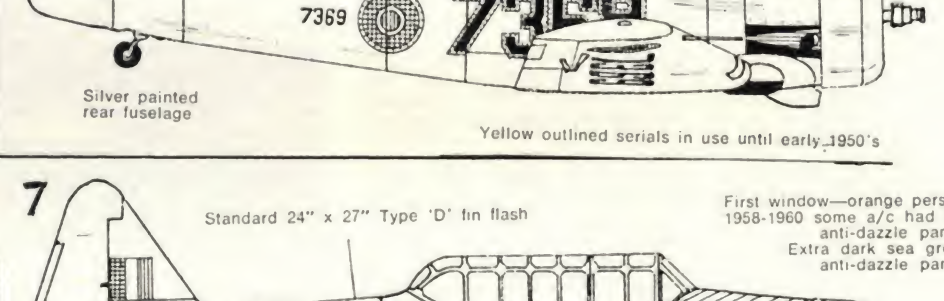


Anti-dazzle panel
now grey

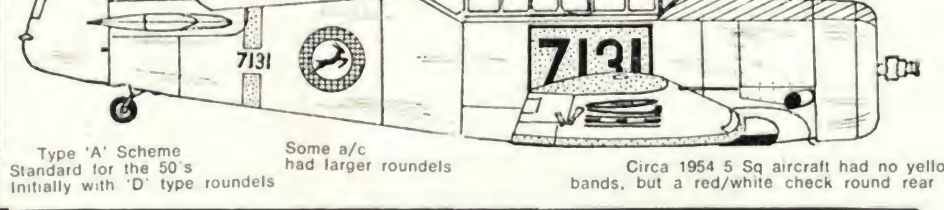


Silver painted
rear fuselage

Yellow outlined serials in use until early 1950's



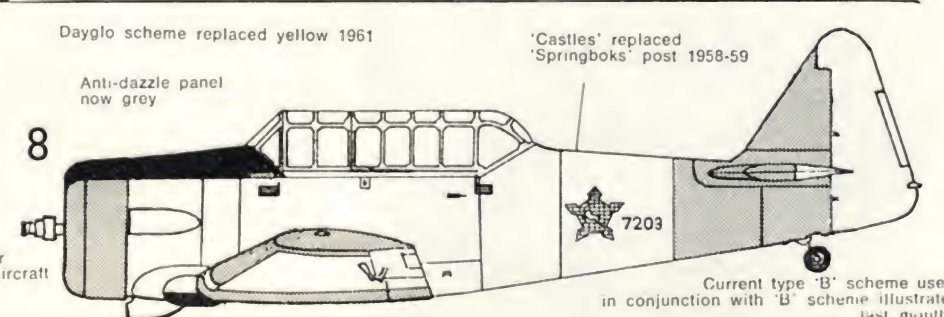
Standard 24" x 27" Type 'D' tin flash



Type 'A' Scheme
Standard for the 50's
Initially with 'D' type roundels

Some a/c
had larger roundels

Circa 1954 5 Sq aircraft had no yellow
bands, but a red/white check round rear fuselage



'Castles' replaced
'Springboks' post 1958-59

Current type 'B' scheme used
in conjunction with 'B' scheme illustrated
last month

7369 CFS 1947
Anti-glare panel
is black and extra
dark sea grey

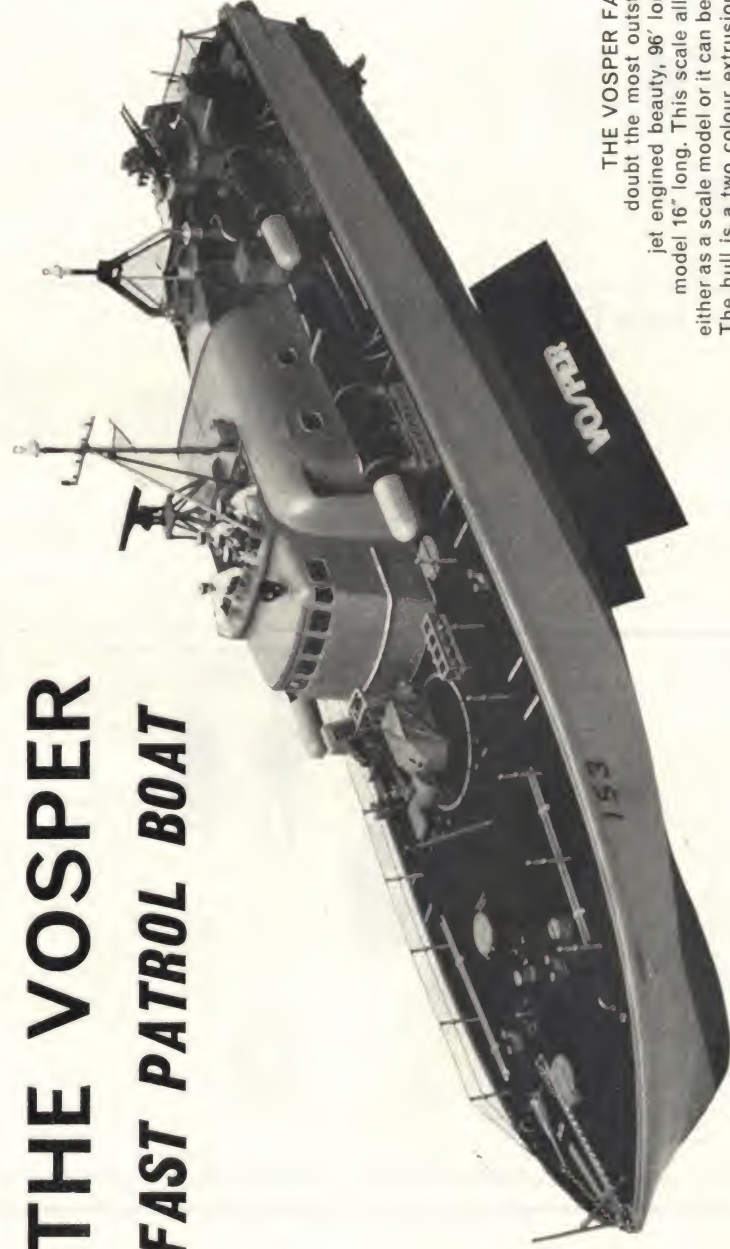
Article continues on the other side
of the advertising section; unstaple
centre pages to work from drawing



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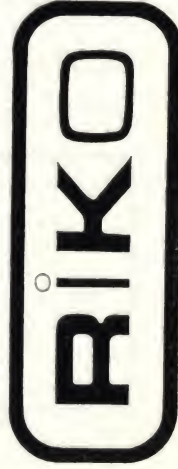
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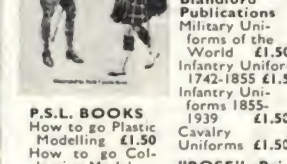
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- MP/13 Musketeer, kneeling, firing.
- MP/14 Musketeer, at ready.
- MP/15 Musketeer, standing arms grounded.
- MP/16 Musketeer, advancing.
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- Drummer (Grenadier).
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The Scorpion Family

Britain's new range of light tracked AFVs

BY NOEL AYLIFFE-JONES

THE British Army has used both wheeled and tracked light armoured vehicles for reconnaissance, patrols and similar tasks, since 1914-18. Owing to the long distances covered by Recce units in World War 2, and similar situations, including Internal Security, in the '50s, interest was concentrated on wheeled AFVs, culminating in the Saladin, Saracen and Ferret, which are still in service.

However, the shift of emphasis to Europe and the reduction in British commitments in the Middle East, the area in which wheeled reconnaissance was most used, has resulted in a new requirement. The British Army is now going over to tracked reconnaissance units with vehicles more suited to the new role of the Forces, both tactically and strategically, giving greatly increased mobility. They must carry out a great variety of roles, so a 'family' has been developed based on common mechanical components. The first of these is the Alvis FV.101 Scorpion.

Development work on the Scorpion family started in the 1950s, and the selected mechanical components were thoroughly tested in the TV.15000 Mobile Test Rig at MVEE (lately FVRDE) at Chobham. Alvis Ltd, builders of the FV.600 series, were selected as Design Parents and built a series of 17 prototypes for trials and development. In 1970, Alvis were awarded a production contract for vehicles for the British Army and in 1971 obtained a further contract for the joint production of vehicles for the Belgian Army.

The Scorpion is the basic vehicle of the family, designed to carry out fighting reconnaissance and fire support tasks and having, in addition, a good anti-tank capability. It is air-portable in the C130 Hercules aircraft and can be dropped by parachute, or lifted by helicopter.

In order to achieve this, the battle weight has been kept down to under 8 tons (17,500 lb). The use of aluminium alloy armour has made possible a considerable weight saving, yet still provides better immunity to attack than any other vehicle in its class. Scorpion is the first fighting vehicle to be built of this material.

The layout of Scorpion was adopted so as to keep changes in the rest of the family to a minimum. The transmission is forward of the driver, who sits in the front left with the engine to his right. The two-man fighting compartment is behind the driver, with the fuel tank and NBC pack in the rear of the hull.

Scorpion mounts a 76 mm gun in the 360° traverse, low-profile turret, with a co-axially mounted 7.62 mm GPMG which can be folded down on to the track guard and protected by a metal cover. The screen can be erected in under a minute, making Scorpion capable of swimming by track propulsion at 3 mph. For special water crossing operations a propeller kit can be fitted to the sprockets, increasing the water speed to 6 mph. Scorpion's low ground pressure of 5 lb/sq in enables it to get in and out over muddy banks better than any other vehicle in its class.



Housing for the night sight on the right side of the mantlet will be covered by an armoured cowl on production vehicles. Commander's sight aperture is on the left of the hull roof, covered by a blanking plate. Note the swimming screen folded down under a steel cover.

used as a ranging machine gun. The 76 mm is an updated and lightened version of the weapon which has been so successful in the Saladin armoured car and fires the same ammunition. Elevation is from -10° to +35°, which gives a maximum range of nearly 6,000 metres. The main armament ammunition, of which 40 rounds can be stowed internally, includes conventional HE, Base ejection smoke, HESH (High Explosive Squash Head) and canister. Two multi-barrelled smoke dischargers are fitted, one each side of the turret, for local smoke projection.

The HESH round has an excellent performance against AFVs, enabling Scorpion to kill or disable all known AFVs including Main Battle Tanks, while its effect against buildings or concrete emplacements is devastating. It is also very effective against troops in the open. The canister round was developed to deal with mass attacks as experienced in Korea and is particularly useful in jungle ambush situations: it can be compared to a large-scale sawn-off shotgun, scattering its charge of steel pellets in a wide angle from the muzzle.

The Scorpion is powered by a militarised version of the Jaguar 4.2 litre engine, derated to 195 bhp to accept military fuels and to prolong the life of the engine. This gives the very high power/weight ratio of 25 bhp/ton. The engine drives through a centrifugal multi-plate clutch to the transversely mounted gearbox and steering unit. This is a hot-shift epicyclic gearbox operated by a foot pedal giving seven speeds in each direction, controlled by a forward/reverse lever. Top speed is in excess of 50 mph, making Scorpion the fastest tracked AFV in the world. Steering is by two conventional levers and provides fixed turning radii dependent on the gear selected, and a neutral turn. The steering and main brakes are disc type with a rim brake for parking.

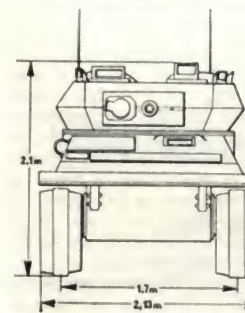
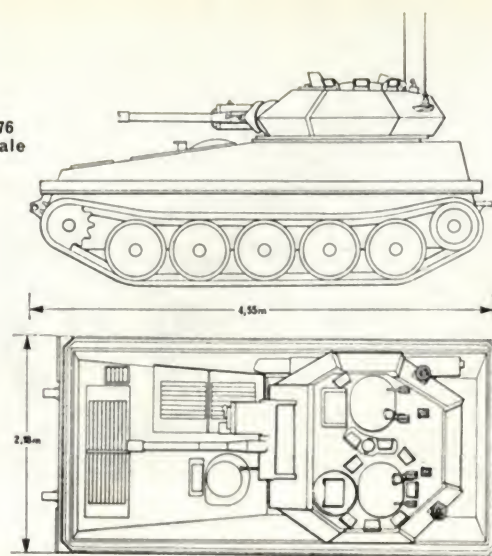
For engine cooling, air is drawn in through louvres over the transmission by a mixed flow fan, through the radiator which is horizontal over the gearbox and thence over the engine and out through the rear louvres, also cooling the exhaust.

From the gearbox the drive goes to the front sprockets and the tracks, which are of the single horn type. To keep Scorpion as quiet as possible, essential in a recce vehicle, the tracks have rubber pads on the outside and a rubber wheel path on the inside, on which run the rubber tyres of the road wheels. Much of the noise of a tank is from the contact between track links and sprocket and in order to minimise this the sprocket has two rubber rings which support the weight of the track, cutting down the track rattle which signals the approach of most tanks. Suspension is by transverse torsion bars within the hull and there are dampers on front and rear wheel stations. Track adjustment is by hydraulic ram on the rear idler.

Each vehicle is fitted with a swimming screen which is normally

AIRFIX magazine

1:76 scale



Above, right: The section view shows construction detail and stowage arrangements. Foot of page: Scorpion is at home at the worst of going. Production vehicles will not have the vertical exhaust tail pipe. Below: Scorpion prototype on test. The driver's hatch and periscope have not yet been installed. Weights are bolted to the sides to bring the vehicle up to design weight. On this prototype, two pairs of headlights, normal and infra-red, were fitted.



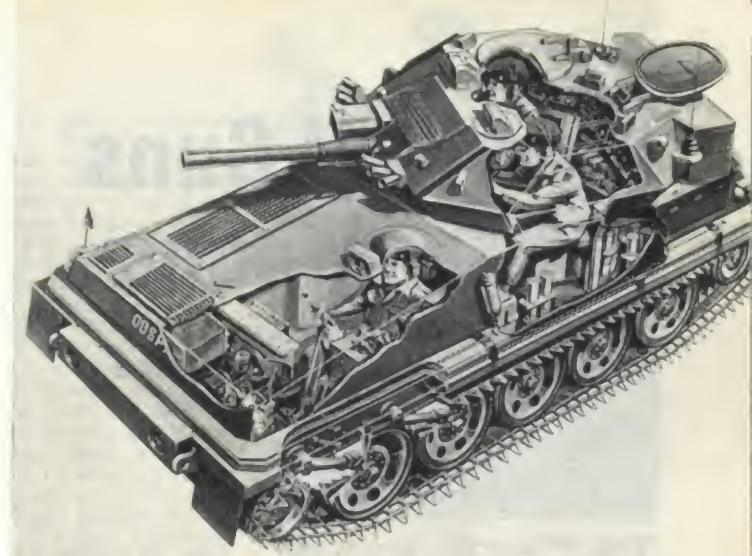
folded down on to the track guard and protected by a metal cover. The screen can be erected in under a minute, making Scorpion capable of swimming by track propulsion at 3 mph. For special water crossing operations a propeller kit can be fitted to the sprockets, increasing the water speed to 6 mph. Scorpion's low ground pressure of 5 lb/sq in enables it to get in and out over muddy banks better than any other vehicle in its class.

Since Scorpion is essentially a reconnaissance vehicle, special attention has been paid to observation devices and the turret is equipped with X10 periscopic sights for commander and gunner and nine X1 episcopes for all round observation. The driver has a periscope for use in the closed down position.

Infra-red masks can be fitted to the headlamps for night driving if needed, and passive image intensifier night sights for firing and driving are available.

Scorpion is capable of operating over all types of terrain, including snow, ice, sand and marsh, and in all climatic conditions. Provision is made for a nuclear, biological and chemical warfare pack to be installed in the rear hull. With the vehicle closed down this would protect the crew from radio-active fallout and provide clean air, free from germs, vapour and gases to the crew positions. Scorpion enters service with the British Army in 1972.

November 1971



The six other members of the Combat Vehicle Reconnaissance (Tracked), or CVR(T) family are:

- Scimitar** — 30 mm Rarden Cannon version.
- Striker** — Guided weapon version with Swingfire.
- Spartan** — APC version for the RAC Recce Section of five men.
- Sultan** — Command Vehicle.
- Samaritan** — Armoured Ambulance.
- Samson** — Armoured Recovery Vehicle.

FV.101 SCORPION CVR(T) FS

General	Crew	3—Commander/loader, Gunner, Driver
	Battle weight	17,500 lb (7,938 kg)
	Ground pressure	5 lb/sq in (.34.5 kg/m ²)
Dimensions	Power/weight ratio	25 bhp/ton
	Length (gun forward)	14 ft 4½ in (4,388 mm)
	Height (top of gunner's periscope)	6 ft 10½ in (2,098 mm)
Armament	Width overall	7 ft 2 in (2,184 mm)
	Width over tracks	7 ft 0 in (2,134 mm)
	Track centres	5 ft 7½ in (1,708 mm)
Ammunition	Ground clearance	1 ft 2 in (356 mm)
	Main	76 mm gun
	Secondary	7.62 mm GPMG
Engine	Smoke	2 × multi-barrelled smoke dischargers
	76 mm	40 rounds (mixed HE, HESH, Smoke and Canister)
	7.62 mm	3,000 rounds
Transmission	Smoke grenades	18 rounds
	Jaguar	4.2 litre militarised version, 195 bhp
	Self-changing gears	TN 15X Crossdrive semi-automatic hot shift type, seven speeds in each direction and pivot turn
Suspension	Transverse torsion bar	
	Max speed	54 mph (87 kph)
	Range	in excess of 400 miles (644 km) on roads
Performance	Max gradient	35° (70%)
	Vertical obstacle	20 in (508 mm)
	Trench crossing	6 ft 9 in (2,057 mm)



Medieval Guns and Cannons

MODELS FOR WARGAMES OR
DIORAMAS WHICH CAN BE MADE
FROM BALSA WOOD AND
ODDMENTS

By Terence Wise

THE first crude 'guns' appeared about 1327 but can have been of little value in warfare for the ballista, catapult, trebuchet, together with all the other paraphernalia of siege warfare, continued to be used alongside the new invention, and it was not until the 15th century that guns finally played an important part, eventually ending the role of castles as military strong points. These early pieces were called *pots-de-fer* or *vasi*, after the metal used or their shape, and fired arrows with metal flights! (Fig A) The next advance came with the use of wrought iron, cannon barrels now being made from long bars placed round a wooden core, and white-hot hoops being shrunk on, as in the construction of wooden barrels. More hoops were added until the exterior was covered, and extra hoops were added for greater strength at intervals along the barrel. The whole assembly was then placed in a fire hot enough to weld the iron into one piece and burn out the wooden core. From this simple 'tube' two types of cannon could then be made—muzzle- or breech-loading.

In Photo 1 is a model of a typical muzzle-loader. The barrel was made from a 35 mm length of 7 mm dowel with a hole drilled a little way into the muzzle end. This was bound every 7½ mm with 'hoops' built up from 1 mm strips of

card. The carriage is a 35 mm length of balsa, ½ × ¼ inch, with two 35 mm strips of ½ inch square balsa along each side of the barrel. The baulks of timber placed across the other end are simulated by a 15 mm length of ½ × ¼ inch balsa with two 'stakes' of ½ inch square balsa 15 mm long. Hoops of card 2 mm thick and 20 mm long were passed over the barrel to secure it to the carriage. Iron parts were painted matt black, the wooden parts with Humbrol Matt 26. Figures from the Airfix Sheriff of Nottingham set provide the crew.

The breech-loading version is shown by Fig B, a wedge being used to hold the breech block in place when firing. In the muzzle-loader the rear end of the barrel was plugged with a piece of forged iron and the baulks of timber were to make sure this wasn't blown out.

These guns were heavy and lacked mobility, but were useful for long sieges where they could be used to batter down walls. In such cases an earthwork or timber barricade was often built in front of the gun position to provide shelter, with a flap which could be lifted to allow the gun to fire.

A later development was the bombard, designed to throw its projectile over the defences of a fortress rather than attempting to batter them down. Fig D shows a bombard mounted on a fixed carriage,

and Photo 2 shows a pair of model bombards based on an early 15th century one in the Rotunda Museum, Woolwich, London. This had a barrel diameter of 15 inch and I would suggest using 6 mm dowel, 10 mm long, with a 7 mm length of 3 mm dowel glued to the rear, to make a barrel assembly. Drill a short hole in the 6 mm length to represent the muzzle end. (My barrel is made from a piece of brass tube removed from an old electrical fitting—I find it useful to hoard such things and have a box full of spare parts, as do many other modellers.)

The carriage is a 30 mm length of ½ × ¼ inch balsa, trimmed to 10 mm wide at the barrel end and tapering to 5 mm at the other. Press the barrel into the 10 mm end, then cut round the depression made to half the depth of the barrel. Glue the barrel into this hollow with the rear section laying on the surface of the carriage. Secure with strips of 2 mm wide card, one strip near the muzzle 16 mm long, and one near the other end 12 mm long.

Stick an axle of ½ inch balsa, 10 mm long, across the bottom of the carriage, 5 mm from the muzzle end. Wheels were made from 8 mm dowel, with cut-off pins pushed through as axles. The 'trail hook' is a wire staple, reduced to 5 mm across the top and with the ends cut short. The cannon balls are ball bearings. The bombard at first used rough-hewn stone balls, then graduated to cast and wrought iron.



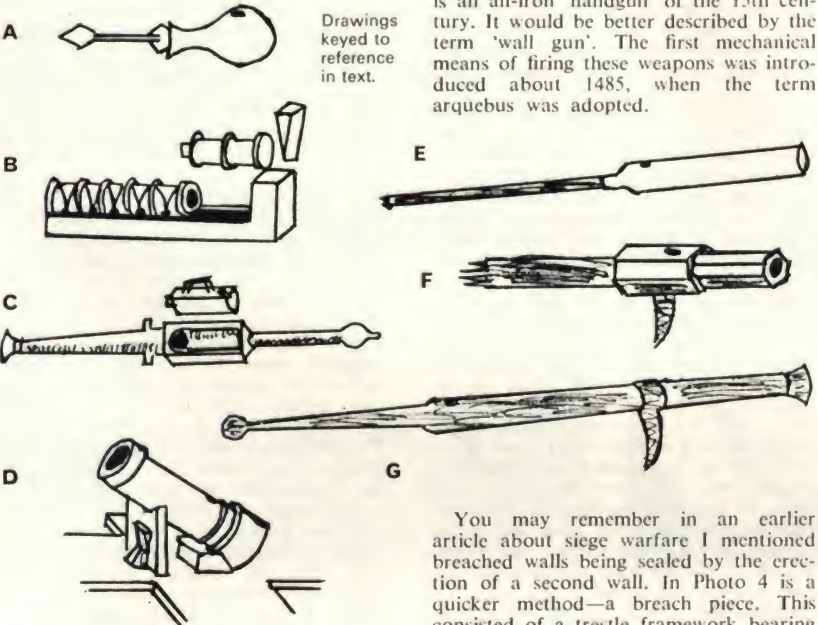
Photo 4: Breech piece mounted on a trestle with cannoneer converted from a suitably posed figure.

Photo 1 (below left): Medieval cannon. Photo 2 (below right): Bombards with crews from Sheriff of Nottingham set.



The 15 inch one modelled could throw a shot weighing about 160 lb. Cast iron guns arrived in the 15th century. Fig C is of a *peteara*, a breech loader. The section shown above the breech, shaped like a bottle, was filled with powder, the opening through which it was filled linking up with the barrel aperture. These guns were still far from efficient and accidents were numerous. In those days gunpowder really was a powder, which had to be mixed on the spot, and required great skill in use, especially when judging the amounts needed to achieve different ranges. Other problems were caused by the loading—if rammed too tightly the powder would

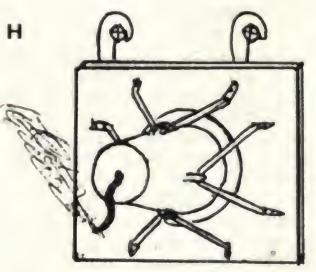
Rotunda, Woolwich, and at the Tower of London. The handgun, also known as the fire tube or powder shaft, was derived direct from the cannon and was at first, as the names suggest, a large tube attached to a trestle or pole, fired by applying a match to the touch hole (Fig E). The other end of the pole was often stuck in the ground to take some of the recoil. Gradually these weapons became lighter and in Fig F is a handgun of the late 14th century with a barrel which looks like that of a modern pistol. However, it was still on a plain wooden shaft and fired by applying a match. This one has a lug on the underside, which could be hooked over a wall to check the recoil. In Fig G is an all-iron 'handgun' of the 15th century. It would be better described by the term 'wall gun'. The first mechanical means of firing these weapons was introduced about 1485, when the term arquebus was adopted.



not fire, if too loosely it merely fizzled out. With the demand for even larger guns the breech-loading system had to be abandoned and the problem was not solved until the mid-19th century. Cast cannons were not made in England until the mid-16th century, at first in iron, then in bronze. Photo 3 shows an early breech-loader which stands outside the Castle Museum in York. Other examples of early guns may be seen at the



Photo 3: Early breech loader outside York Castle Museum; see also drawing C.



and 15 mm high, the cross pieces being 7 mm at the top and 10 mm at the bottom, so that the front of the frame is angled forward to prevent the weight of the weapons toppling the piece forwards. Wheels were punched from card. There is one more weapon which should be considered for wargaming in this period, although it is too small for modelling in the 25 mm range. This is the Petard, a sort of early limpet mine, which was used to blow open gates or make holes in walls. It consisted of an iron pot—a toothpaste tube top would be ideal in 54 mm scale—filled with gunpowder and attached to a board (Fig H). The largest held about 15 lb of powder. The Petard was hung on nails driven into the target, the slow fuse lit, then the applicator ran like hell, and if he didn't run fast enough he was 'hoist by his own petard'—a term which suggests that firing these mines was often as dangerous to the attacker as to the attacked. Happy hoisting!

SAAF Harvards—from page 139

NATO-type stencilling replaced the earlier type from the late sixties and many squadrons used coloured wheel discs in addition to badges as identification (see accompanying list). From 1969 many Harvards appeared in an alternative colour scheme deleting the yellow fuselage panel, wing markings and fin flash (Drawing 8). These two schemes remain standard at the present time, with most aircraft painted silver and a few in natural metal finish. Some may be seen with natural metal cowlings instead of dayglo and one aircraft, 7703, has had the extra dark sea grey removed from the top surfaces of the wings.

Apart from this, SAAF Harvards generally follow the standard patterns, unlike the vari-coloured aircraft of the 1940s. A recent report mentions that about 50 SAAF Harvards were sold to the Força Aerea Portuguesa with serials in the 1501+ range, so it seems that some day soon, the last chapter will be written on the SAAF Harvard story. For the present, however, this famous aircraft type still remains very much in active service. The authors wish to thank A. Le Nobel, R. R. Belling and Mike Schoeman for help given in collating the information and completing the drawings.

Geschuetzwagen III/ IV 'Hummel'

CONVERSION FROM THE
AIRFIX Pz IV KIT

By Gerald Scarborough

THE 15 cm Geschuetzwagen III/IV, Sd Kfz 165 'Hummel' was the final production version of the 15 cm self-propelled gun, having improved driver and wireless operator compartments. This powerful sFH 18/1 gun was mounted on a basic Pz IV chassis with transmission parts, including drive sprockets, from the Pz III. The engine was mid-mounted to allow for a large clear fighting compartment at the rear, while driver and wireless operator sat alongside the gearbox and transmission components. The 15 cm gun was mounted above the engine with a limited traverse of 3° either side and elevation of +40° to -3°. The frontal armour of the hull was 30 mm maximum, the sides of the fighting compartment being of 10 mm plate to give some protection to the six-man crew. While being of a makeshift nature, these vehicles were nevertheless an effective weapon with ranges from 4,380 yds to 14,550 yds, dependent on the charge, of which there were eight types available. The use of the well-tried Pz III and IV components ensured a reliable and trouble-free weapon.

To produce a model of this vehicle from the basic Airfix Pz IV kit entails a fair amount of work that should be within the capabilities of anyone who has done conversions before. However, I would not recommend it as a 'first' model since it requires accurate measuring and drawing of the parts on to plastic card and careful construction to ensure success. Constant checking and dry runs are particularly important at each stage of construction and I hope that my method will be clear from the drawings and photographs.

Construction

A few modifications are necessary to the basic Pz IV hull. These consist of removing the front sprocket mountings and drilling locating holes to take the StuG III sprockets slightly forward of the original locations, in parts 9 and 38 to agree with the dimensions on the drawing. Do not push the StuG III sprockets in to the full extent of their 'axles' but only sufficient to line up with the roadwheels.

Carve off all the details of transmission inspection cover hinges and ventilators, etc. All tools from part No 79, and cut off the rear portion of the track covers to the position shown on the drawings. Fit together the bottom (part 81) and

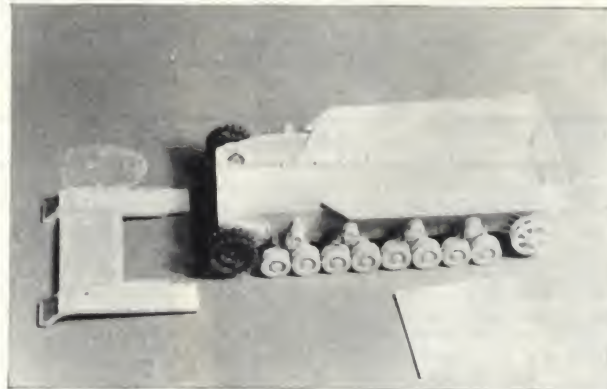
the sides (parts 9 and 38) and add all the roadwheels, idlers and return rollers, painting in the basic colour at this stage. Add the painted tracks, checking length, as it will be virtually impossible to get them into place after final assembly. Also their weight gives the model some 'body', making it easier to handle. The out of scale thickness of the hull side pieces means that the track covers inside the fighting compartment are a fraction over-size and the floor just that bit too narrow, so take the measurements for the engine cover/fighting compartment front and floor from the model itself to ensure a good fit.

To the top of the sides add a section cut from the discarded rear track covers, cut to the thickness of the side pieces. On top of this add the new covers cut from 20 thou plastic card. Allow for the thickness of the top sides, angled front sides, and the rear when cutting these. Inside the hull add the inner sides which will help in positioning the floor and engine cover, but note that these also form the hull rear overhanging extension with the addition of an outer side to the rear of the idler mounting. The photographs of the hull under construction will help to show the model at this stage. To complete the hull up to the trackguard level, fit the cut down part No 79 1.5 mm forward of its designed location, and add the new front faces, transmission housing top, driver's compartment front and the top to the driver's/engine compartment. Add a new lower rear and end. The small front sides to the driver's compartment can now be added from 10 thou plastic

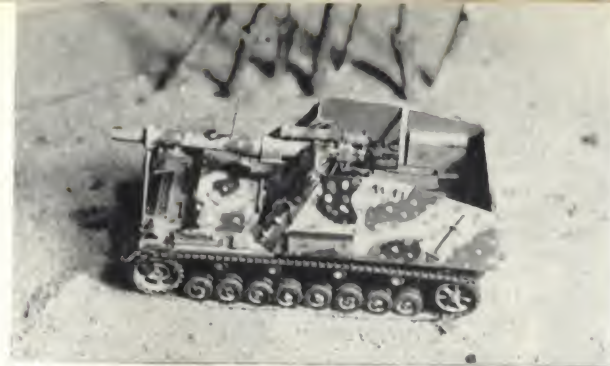
card. This assembly is quite straightforward but requires careful measuring up and trial fittings. Some edges will, of course, have to be 'bevelled' to obtain a good fit.

The main armoured sides and the end (with access doors scored in) can now be fitted to the basic hull, the sides coming down flush with the undersides of the track covers. Note that the rear end does not come up to the top of the side pieces. To assist in locating the angled front corners I first cut out a solid sheet front which I taped in position on the engine cover top, bracing this to the rear at exactly the correct angle. Measurements for the corner pieces can then be taken direct from the model, cut out and tried for fit before cementing in place. Incidentally, these 15 cm SP guns only carried 18 rounds of ammunition and were usually accompanied by an identical type, without gun, as a munitions carrier. This type had a single sheet over the gun aperture and would therefore make an easy companion vehicle.

The temporary front is now removed and the centre gun aperture cut out before permanently refixing back in position with the addition of the inside shields from Microstrip. The two stowage boxes can now be fitted inside the rear of the fighting compartment, and the shell rack to the right side, on the track cover. Externally the air intake grilles can be cemented to the sides, and all the hatches and observation covers added. Twin exhaust pipes, one each side under the track covers, run from the mid-mounted engine. Finally, to complete the



Left: View showing new superstructure under construction.



Photograph showing completed model of the Hummel SP gun, camouflage scheme is 'Desert Sand' oversprayed with patches of reddish-brown and dark green, with 'spots' of yellow ochre and a lighter green

hull, add headlights, tools, hooks, etc, as shown in the illustrations.

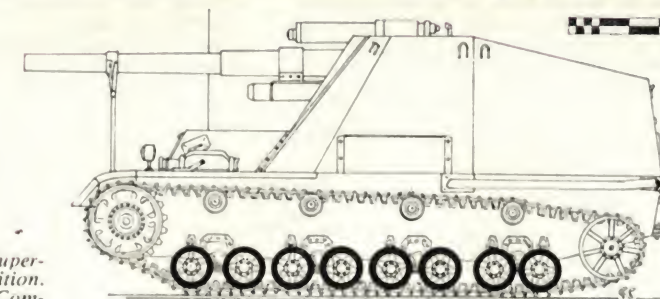
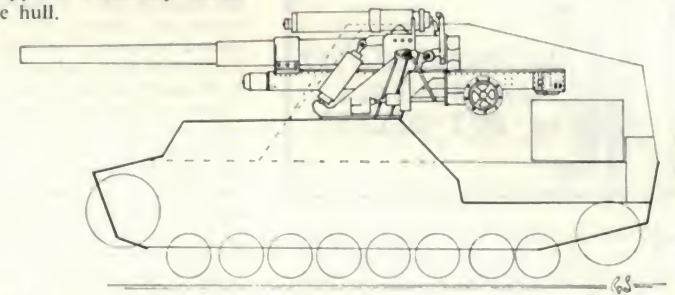
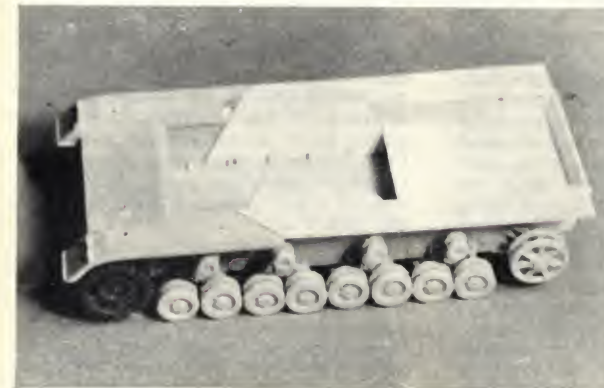
The 15 cm gun construction is shown on the drawing and in the photographs and it is fabricated from scraps of plastic card, sprue, etc. Start with the semi-circular base, add the trunnions from 20 thou with reinforcing web detail from Microstrip. The recoil carriage is from a strip of 20 thou sheet and Microstrip, while the barrel came from a plastic paint

brush handle and a knitting needle. The top recoil cylinder and the breech are from an '88', the elevating balance cylinders from knitting needle and sprue, other details, eg, the traverse and elevating controls from the scrap box.

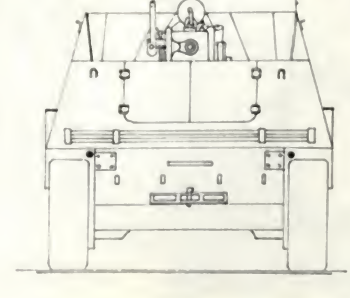
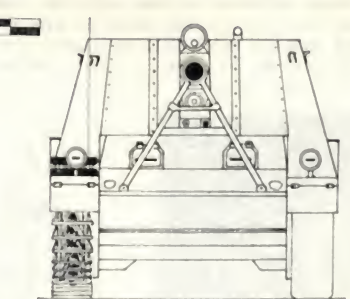
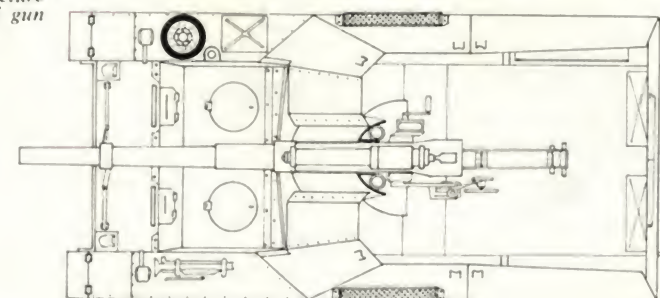
The curved, armoured, gun shield is moulded round a dowel by the usual boiling water treatment. If you wish to model the gun elevated, the maximum angle is 40 degrees and in this case the barrel travel supports would lay across the front of the hull.

Basic colour scheme on my model is Desert Sand 'oversprayed' with patches of reddish-brown and dark green, with 'spots' of yellow ochre and a lighter green. This was a useful scheme for SP guns, which were often bedded down in the shelter of trees and the dappled paint job was an effective summer camouflage. This style is shown in the photograph of the Hetzer, page 61 *Airfix Magazine* October 1970.

Below: Photograph of completed gun barrel.

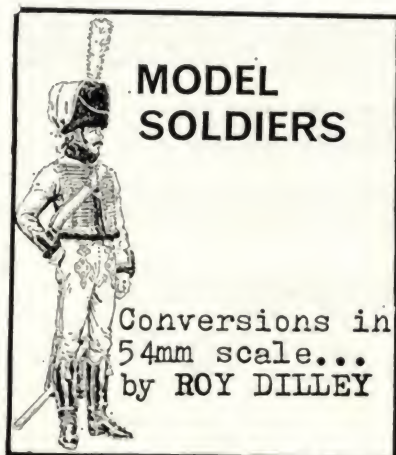


Above left: Superstructure in position. Above right: Completed superstructure before fitting of gun mounting.



1:76 scale

November 1971



SEVERAL times in the past year or so my articles have featured models of British soldiers serving in one or other of the various small colonial wars which took place in the latter half of the 19th century. From letters which I have received, and from conversations I have had with enthusiasts at meetings and competitions, it appears that there is a very considerable interest in the soldiers, uniforms, and backgrounds to those wars. I suppose it is not altogether surprising when it is remembered that the campaigns were fought for the most part by relatively small British forces, often facing seemingly overwhelming numbers of ferocious tribesmen or savages, yet usually managing, so great were the advantages of discipline and organised fire-control, to win their skirmishes and battles in the end. Morale also played a considerable part in the successes gained by these tiny expeditions, for the soldiers always believed without question that they were more than equal to whatever and whoever was thrown against them. There were, of course, some occasions when the odds were too great, and

disaster overtook a British force, but morale was never shattered in the Army as a whole, and grim retribution was usually meted out to the temporary victors!

Because it was organised to deal with savage or unsophisticated opponents, the British Army of the late eighteen hundreds took some while to adapt itself to cope with adversaries of European stock. But cope it did in the long run, and learnt its lessons to such good effect that the Expeditionary Force that landed in France in August 1914 was the best trained and equipped that had ever left Britain's shores, and gave an account of itself out of all proportion to its size.

That a large percentage of the world's population was able at one time or another to live under the protection of the Pax Britannica was largely due to the efforts of the British Army, laughably small by European standards, but backed up by the forces of the Empire and by the might of the Royal Navy. Between them they formed the finest peace-keeping force that the world had seen since the days of the Roman Legions.

Between 1870 and the end of the century the British Army was engaged in a number of conflicts on the borders of the great Indian Empire. Typical of these was the war with Afghanistan which lasted from 1878 to 1880, and involved much hard fighting in mountains, passes, and plains against a numerous, fierce and extremely tough adversary. Several battles of some magnitude were fought, including the near disaster of Maiwand, where only the stubborn resistance of the 66th Foot (later 2nd Bn Royal Berkshire Regt) despite appalling casualties, prevented the general massacre of a mixed British/Indian force. This was also the campaign in which Major-General Sir Frederick Roberts, VC, 'Bobs' to his men, led the famous march from Kabul to Kandahar, a distance of some 320 miles, which was accomplished in only 20 days, and involved the passage over very difficult country of 10,000 fighting men plus



Two views on this page show right and left sides of the figure. Though a standing position has been selected, same conversion would be possible using a basic kneeling figure.

almost as many camp followers, indispensable in Indian campaigns, plus all their transport, animals, and impedimenta, and under the constant threat of attack.

Among the British cavalry regiments employed during this campaign was the 10th Hussars. They saw a good deal of hard service, and experienced a terrible disaster to one of the squadrons when 46 out of 76 men crossing a ford of the Kabul River were swept away by the force of the current and drowned. A heliograph signalling group of the 10th Hussars is the subject of my articles for this month and for December.

As has been previously stated, field-service clothing in the army at this time was undergoing a gradual change from the brightly coloured ceremonial type of uniforms of the Crimean War period to the comfortable, neutral-tinted garments worn at the end of the century. The dress of the 10th Hussars in Afghanistan reflected this evolutionary process, and consisted of elements of full-dress together with more sensible campaign items. A khaki cloth cover was worn over the standard white sun-helmet or

'topee', which helped to make it less conspicuous, although the brass spike and chin scales were retained! Tea or coffee was used to dye the white cotton drill hot-weather frock, or tunic, to a pale brownish khaki shade, and this garment was worn over dark blue breeches, with double yellow stripes down the side-seams, blue cloth puttees, and brown natural leather boots, with steel spurs. Equipment consisted of a haversack and wooden 'Oliver' water-bottle, both worn on the left with straps over the right shoulder, and a cartridge pouch on a wide buff belt slung over the left shoulder around the body. Standard cavalry armament was carried, that is a Martin-Henry carbine of .45 calibre, and a sword slung at the left hip from a belt worn under the tunic.

All the conversions are carried out using figures from the Almark's set of Japanese Infantry. These are made of hard polystyrene plastic, and can be worked in a very satisfactory fashion.

The group consists of three figures plus the heliograph signalling instrument. This month I am describing the conversion to make the group commander with his telescope. Next month's article will cover the other members of the group, the heliograph, and the construction of a miniature diorama in which they can be displayed to advantage.

Conversion 1: NCO i/c Section

Figure required is the Almark advancing Japanese infantryman who provides the necessary basis.

Clean off any mould flash from the

figure, then carefully remove the ammunition pouches, haversack, bayonet scabbard and water bottle. Similarly cut off all moulded pockets and straps from the tunic, remove the head, and shape the tunic neck to form a high collar. Next, file or sand the trousers into riding breeches, tight at the knee and loose at the thigh (Fig 2). Select a suitable head from your spares box and cement it into position. I used one cut from an Almark's American figure, but any polystyrene head will do if the features are well defined.

Next, drill holes in the boot heels with a fine drill, and insert short lengths of sprue to make spurs, securing them with a minute dab of cement or liquid adhesive. Spur straps are made from thin plastic strip and also fitted over the boot insteps at this stage (Fig 3). Now make a haversack and water bottle from scrap and fit them to the left side of the figure as in Fig 4. Add straps, from thin plastic card or stout cartridge paper, passing over the right shoulder. Also make a pouch and cement it to the middle of the back with a wider strap (belt) passing round the body and over the left shoulder (Fig 5).

Select suitable arms to suit the attitude (see photographs), and attach them to the shoulders, adding narrow plastic card shoulder straps.

Fill any gaps at the junctures of arms and shoulders with plastic putty, then, having trimmed out and fitted a Japanese helmet to the head, smear this generously with the same material and, when dry,



Two more views of the figure. Colours are simple for this uniform and details are given on this page. Telescope is bound in brown leather. Puttees are same shade of dark blue as breeches.

sand to the shape shown in Fig 6. Drill a hole at the top and insert a length of plastic rod which is then shaped to form the spike. Plastic strip is used for the chin-scales, which can be worn under the chin, or looped round the front of the helmet to the base of the spike.

Fit thin plastic sword slings to the left hip and, using the dimensions in Fig 7, fashion a telescope case which is cemented to the right hip with a strap over the left shoulder. The telescope should also be made at this stage, but do not fit it into the hands of the figure until painting has been completed. Check that all stages have been carried out satisfactorily, and cement the figure to a temporary base ready for undercoating and painting.

This gives a single representative figure but the next article will give further men to make up the group.

Weed-Sprayer Unit—from page 131

and when dry file and sand this away to leave a smooth surface. If after one application and subsequent smoothing the holes are still slightly visible, the process should be repeated. Paint the tank yellow before proceeding any further with the construction. Several coats are needed to give good coverage with a light sanding between coats. The end valve (Part 4), manhole cover (Part 5) and screwdown valve (Part 6) are painted black and then fitted to the tank. The one catwalk platform to be used (Part 40) is cut down in length as shown in Fig 2, painted black and cemented in position.

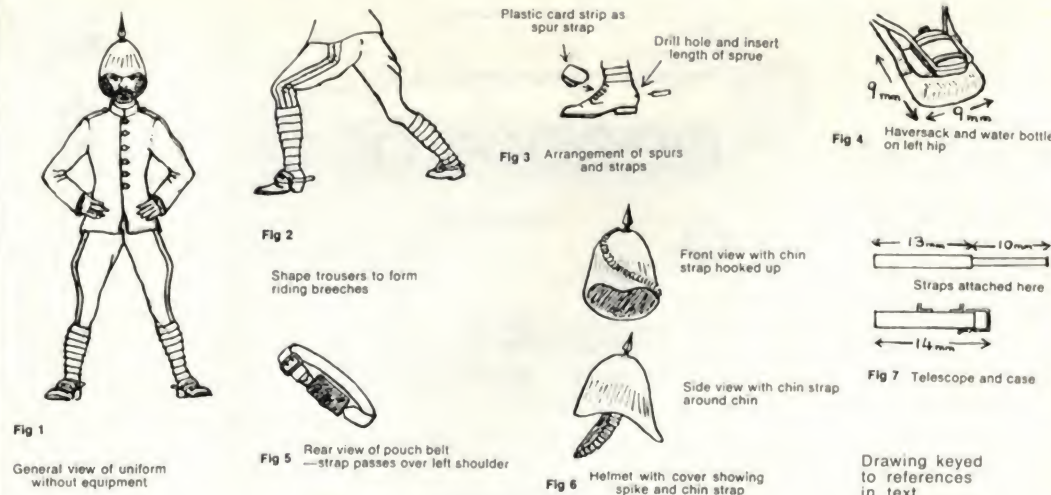
Cut the four tank supports from the underframe (Part 9) of the tank wagon kit and after painting them yellow, fit them in the positions shown in Fig 1. I found the easiest way to fit them was to hold the tank in the correct position on the chassis, put each of the four supports in place and then run a little liquid cement into the joints with a paint brush. Make any slight adjustments needed before the cement dries. File the rungs of the ladder (Part 42) down a little to make them look less heavy and to improve their appearance. Hold the ladder in position and note where the pins will come on the solebar and make holes of suitable size in the appropriate places.

The ladder can then be painted and fixed.

The piping at the rear which leads the weedkiller from the tank and sprays it on to the track is built up from parts of the Bloodhound kit: the wheel is the steering wheel (Part 53) from the 88 mm Gun and Tractor kit. I could not work out the arrangement of the piping on the original unit from the single photo I have so I have fitted a simplified version to my model. This is shown in the sketch

(Fig 3). An optional addition would be one or two boxes for tools, fittings, etc, which can either be toolboxes 'borrowed' from an Airfix Pug kit or be built up from scrap. The towing bar to link the Landrover and the tank wagon can be cut from a piece of sprue, or from Part 53 of the Bloodhound kit.

Lettering on the tank side should read 'Weed spraying unit', 'M of W Dept' and a number.



Drawing keyed to references in text



Fallschirmjäger



By Robert C. Gibson

CRETE was won at enormous cost in trained manpower; never again did the Luftwaffe send their élite regiments in such force, and, in fact, the conditions for successful paratroop operations were never to occur again, except locally.

Already the rot had set in: in September 1941, elements of the 11nd battalion of the Sturm Regiment were committed to the infantry battle on the Russian front. Although the Fallschirmjaeger force was to expand by 1945 to a nominal strength of 11 Divisions and a Parachute Panzer Corps, few, if any, of these formations were paratroop-trained, and can be better envisaged as élite infantry (the Hermann Goering Parachute-Panzer Division was not to be compared with Army and SS armoured divisions, being superbly equipped and poorly trained).

Fallschirmjaeger units fought at El Alamein (the famous Ramcke Brigade, equipped largely with captured British Army trucks) and stiffened the last stand in Tunisia in 1943.

Uniforms and Personal Equipment

The uniform in which VIIIth Flieger-Division landed in Crete was intended for use in colder climates, and while it suited the units in Russia until winter came, for Ramcke's Brigade based in the Mediterranean, tropical drill uniforms were issued. Luftwaffe insignia was worn, also on the Wehrmacht topi or tropical feldmütze.

A khaki-coloured drill coverall jacket was also issued in North Africa, worn with grey-blue or washed-out tropical drill trousers. The distinctive helmet was also to be seen in grey-blue or stone colour, or with a khaki drill cover; the national shield had almost disappeared



Above: View of completed 54 mm figures and 8 cm mortar. Note mortar bomb taken from Hawker Hart kit. The two helmetless soldiers are mortar crewmen

by 1942, leaving only the swooping eagle emblem in white or grey.

It should be stressed that the Luftwaffe khaki-drill was of a light brownish-khaki, compared to the Afrika Korps greenish-khaki, but supply problems must have obliged a certain amount of makeshift, and combinations of the two did appear. Also, of course, these drill items washed-out or faded to a neutral colour quite quickly. The Tunisian reinforcements in 1943 wore regulation khaki-drill, with stone-coloured helmets and coveralls.

Most of the European-based units were equipped with a camouflage smock in 1942: this is shown in the diagram, and was knee-length like the original rush-green smock. Few of these found their way to Africa, being unsuitable in colour, but they were used in Southern Russia in the summer. A shorter version appeared later, cut to tunic length.

Modelling

OO/HO: The best figures for the Africa campaign are naturally the Afrika Korps, since they possess the baggy trousers and are in tunics or shirt sleeve order, which is appropriate. For the Russian front troops, use the Airfix British Paratroops with Plasticine additions as described in detail in Part I.

The main part of our OO/HO modelling this month is more 'heavy equipment'. First, the PzB41 on its normal carriage: this was used in Africa and on the Russian front until supplies of wolfram dried up for the armour-piercing shells.

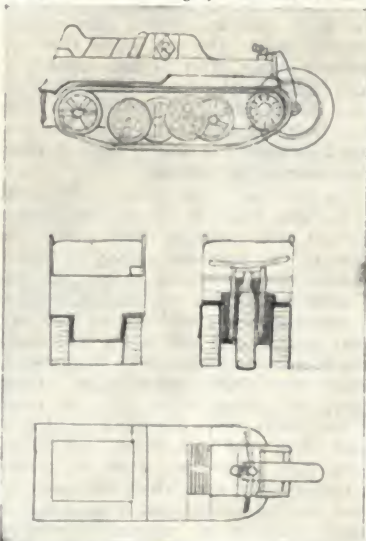
Taking the PzB41 from the Afrika Korps or German Infantry set, remove the carriage and the trunnions. From the Airfix Bren Carrier kit, take the trunnion from the 6 pounder and fit the gun barrel on to it. Next, take the 6 pounder trail halves, remove the centre parts as indicated, and cement together. Remove the eye bracket from the trail, and set aside: trim the 'horns' off the front of the trail halves. Find a plastic washer from the spares box of a suitable size to fit the trunnion spindle, and wheels of 9 mm diameter. Assemble the trail halves on the trunnion spindle, followed by the eye bracket: do not glue these. Now fit the washer tightly on, and apply cement to the end of the spindle to secure it. Cut off an 18 mm length of plastic rod to serve as an axle: cement this to the eye bracket, and the wheels to each end, as shown.

The Bren Carrier kit provides the means for our second model, the NSU Kettenrad half-track motorcycle used to tow the light artillery of the Fallschirm-

jaegers, and which was landed from Gotha 242 gliders on Crete. The basis of the model is the engine cover which is cemented to the upper structure (of four layers of 60 thou plastic card). After cementing, further extend the box rearwards to the rear line, trim it, then fit the rear endplate.

Taking the tracks, carefully remove the bogie wheels. Cut the track as shown and, after trimming off the detail on the double bogie-wheel, cement on the inner side of the tracks, 1 mm from the sprocket wheel. Cut two 5 mm discs from 20 thou plastic card, and cement in place. Cut two pieces of 60 thou plastic card 2 mm x 8 mm, and cement centrally on the ex-Bren engine cover, level with the lower edge. After painting the interior of the track wells, and the track units, cement the tracks to the chassis. Paint the outside of the tracks, and the wheels to represent the originals. Select a suitable wheel for the front wheel (10.5 mm in diameter) from the spares box, and make up the front forks and handlebars from plastic card strip and rod; bend the handlebars carefully, using round-nosed pliers. Finally, make up the rear seat from scrap plastic and mould the backrest from plastic putty or Plasticine. The handrails can be made from fine wire or carefully bent stretched sprue. All Plasticine work must, of course, be 'cured' with banana oil before painting.

54 mm: This month we are using the Almark's Panzer Grenadiers. The same methods apply as for the Airfix figures, Below: 1:76 drawing of NSU Kettenrad.



AIRFIX magazine



Above: Key to drawings: (A) Tropical uniform (Ramcke Brigade). (B) Shirt sleeve order (Tunisia). (C) Camouflage smock: (a) dark reddish-brown; (b) dark olive green; (c) light grey-green with thin vertical stripes of colour b. (D) Split view of NSU Kettenrad. (E) Cutting diagram for Bren carrier tracks. (F) PzB 41 split view. (G) 81 mm SGrW 36 split view.



except that plastic putty is used to build up the lower smock and cover the tunic pockets. Helmets can be cut down with knife and file, and the feldmütze can be simulated in plastic putty suitably filed down. The helmet can also be used to make the topi worn in Africa: details will be given next month.

The 81 mm mortar shown in the photographs is simply made. A 38 mm length is cut from a plastic drinking straw; one end is filled with plastic scrap. A 15 x 9 mm rectangle of 20 thou plastic card is cut and rounded at the edge. Wrap a 4 mm wide strip of Sellotape 7 mm from the open end. The bipod is made from plastic rod and strip, the lower legs 16 mm long, joined by two 5 x 1 mm strips, and the upper 'leg' is 9 mm long. Above this is a 7 mm long bar of plastic rod, and a 3 mm diameter piece of scrap plastic

which joins the bipod to the mortar barrel. Assemble the bipod to the barrel at the Sellotape band and cement; then cement the barrel end to the centre of the baseplate.

The result, when painted, is most effective and very cheap to produce.

Above and below: Two views of the NSU Kettenrad, PzB 41 and converted Airfix HO/OO figures taken from the Afrika Korps and Paratroop sets



'Black Swan' class sloops—from page 130

As far as the ship names are concerned, it seems that the early intention had been to call them after what might broadly be described as 'aquatic' birds, and this was certainly followed with the first of the 'Black Swans'. Thereafter all manner of bird-names were adopted, intermingled with animals and others. Why this was done is not clear, since there were, after all, very many attractive names from which to choose. Three more bird-names were, in fact, earmarked, *Partridge*, *Waterhen*, and *Wryneck*, but these ships, together with *Nonsuch* and *Nymph*, were surplus to post-war requirements and were cancelled in 1945.

Ships transferred to West Germany adopted names only too well remembered by the Royal Navy—a choice which caused

very mixed feelings at home and a number of letters to the press. The RIN (as it then was) chose the names of Indian rivers for their six sloops, and subsequently followed the same theme in their post-war AA frigates. On partition, two ships were transferred to the newly-created Royal Pakistan Navy and were renamed *Jhelum* and *Sind*.

Finally, it is perhaps of interest to look at the composition of typical Escort Groups in the North Atlantic during World War 2 in the table given on page 130.

The photographs this month illustrate examples of the earlier ships: in Part 2 they will show post-war survivors of the first vessels discussed and the 'Modified Black Swan' class, generally.



On Saturday, September 18 the Midlands Branch of IPMS held a very successful annual convention and competition at the Town Hall, Leamington Spa. Here are just three models which caught the eye. Upper left: Airfix Black Prince, beautifully finished. Upper right: WAAF of 1944 vintage. Below: Airfix Scammell recovers a Grant in a desert diorama.



NEW

KITS AND MODELS

AMT: 1:25 scale Ford LNT-8000 Tractor

ARE you tired of matt greens, greys, browns and black? Then treat yourself to one of the new AMT commercial vehicle kits which have recently become available in this country and start using some of those glorious gloss colours. Our review kit, supplied by Richard Kohnstam Ltd, was of the American Ford LNT-8000 Tractor (prime mover), a 6 x 4 vehicle powered by a Ford/Caterpillar V8 diesel engine and having dual rear wheels.

This is a relatively expensive kit, which has several disappointing features. The box looks attractive and is cellophane wrapped but is of very flimsy construction which might not stand up too well in the post unless very securely packed. The various kit components, moulded in matt white plastic, are contained in two plastic bags. These components are not attached to trees, but to odd lengths of spruce. There are in addition two large trees of 'chrome' parts, but these are not packaged and thus some of the more protruberant items such as fuel tank sections had suffered some scratching, also, several of the white plastic components were warped. These included the main chassis members. One rear suspension unit required considerable attention to straighten it before it could be used.

There is no check list of components in the instruction sheet, so some considerable time has to be spent in sorting out the many small parts and identifying them from the illustrations. As many of the engine components are tiny, care should be taken not to mislay or lose these. The instruction sheet is adequate but does leave quite a lot to the imagination and a newcomer to plastic kits would probably have to do a lot of head scratching in building this model.

One final criticism is that several parts were faulty in that they had mould dimples in them and plastic putty was needed to restore their contours. Mould lines appear in awkward places, necessitating much work with file, modelling knife and razor blade. Flash is, however, notably absent.

Before starting construction, the instruction leaflet should be carefully studied, and construction sequences noted—this is particularly true in respect of the assembly of the rear axles and suspension. Painting is best done before assembly and with the many small component parts going to make up the engine, this offers considerable scope. The appearance of the engine is enhanced by the addition of 'chromed' rocker arm covers, exhaust manifolds, fuel injector, etc. However, whether this treatment would be applied to full-size production vehicles seems doubtful.

The wheels, always the crowning glory of any vehicle, are very well moulded, 'chrome' finished, and have separate

rims. These rims can be attached to the wheels first, and the realistic tyres which are of flexible black rubber-like plastic slipped into place over them. Plated chassis fittings include sturdy front bumper, two large fuel tanks, vertical exhaust pipes, foot plate and 'fifth wheel' trailer attachment. A point to remember when working with plated components is that the plating should be scraped off the part where cement is to be applied to ensure a good bond.

When completed, the chassis has a most realistic appearance, but care should be taken to ensure that the axles are square to the chassis in order that the transmission lines up, and the completed vehicle rests squarely on its wheels. The bonnet and cab exterior come in two large, clean mouldings. The cab interior is separately built and contains a wealth of detail. Care should be exercised when fitting the cab glazing as it is always easy to get cement on to these vital parts. The various instruments can be carefully painted to give a realistic appearance.

Exterior 'chrome' detail is lavish and consists of large rear view mirrors and fittings—these are fragile and need care in assembly—five roof lights, air conditioning unit, air horns, headlights and radiator air-intake grille. As previously stated, this model lends itself well to bright colour schemes and our model was given a gloss black chassis, yellow suspension and transmission, red bonnet and cab—the whole set off by sparkling 'chrome'. The engine was mainly dark gloss green with details picked out in other colours, red cylinder heads and yellow fan and pulleys. A sheet of good quality transfers is provided, giving a choice of trucking company livery, number plates and pin striping.

To sum up, this is a very satisfying kit to build but not one to be rushed, and once faults are corrected will make up into a model of exhibition standard. A treat for commercial vehicle enthusiasts, making a refreshing change from the usual run of kits. Our criticisms are largely concentrated on packaging and presentation, which certainly do not approach the standard of firms like Tamiya and Monogram. The kit costs £3.50 and can be had from most big model shops such as Jones Bros and BMW Models. L.A.M.

Hasegawa: 1:72 scale Shinmeiwa PS-1 or SS-2

THE latest release to reach us from this prolific Japanese manufacturer makes a welcome change from the more predictable models that have recently come on to the market, and will greatly please those to whom flying boats have a special appeal.

The Shinmeiwa PS-1 is nearly as unusual in appearance as the Fujimi Hawkeye, released last year, and makes up into an extremely attractive model that will grace any collection. Its sheer size—wingspan of around 18 inches and similar length—makes it one of the largest 1:72 scale models made by Hasegawa, and when completed its graceful, imposing shape is a natural eye-catcher.

As one has come to expect from Hasegawa, the mouldings are really beautiful and it seems almost a shame to break them off the sprue! Over 100 parts go to make up either the armed military version (PS-1) or unarmed civil/rescue version (SS-2) of this unusual amphibian. The latter feature—with optional undercarriage parts—makes display (which is so often a problem with flying boats) very easy.

The propeller assemblies consist of five separate parts, each of the three blades being individually assembled into the two parts of the spinner. Construction is straightforward although caution should be exercised in selecting the correct parts of the version being modelled.

Only two problems occurred with the review sample, the first being the removal of the two plastic cut-outs in the fuselage halves for the wheel wells on the PS-1 version (scoring through the plastic during the moulding process would have made this much easier), and the second was that the inboard struts (parts 84 to 87) on the wing tip floats were too short. These shortcomings can be overcome easily enough by the average modeller, however. Transparencies are very clear and enable the cockpit detail to be easily seen, but again care is required in joining the two halves of the cockpit if an unsightly joint is to be avoided. Transfers for both versions are provided and are to the usual high standard now associated with this manufacturer.

The review sample was supplied by Dri-Dec of Newbury, who have stocks of this very large kit at £3.50 each, plus extra for postage.

Hasegawa have planned a Marlin as a future release, so it seems as though the days in the wilderness for those attracted by flying boats is reaching an end. B.P.

Frog: 1:72 scale Grumman F6F-3 Hellcat

THE latest addition to the Frog range is the F6F-3 Hellcat. This model can be assembled to produce one of two Hellcat Is, of the Fleet Air Arm, one of 800 Squadron aboard HMS *Emperor*, and the other of 1839 Squadron aboard HMS *Indomitable*, both in 1944.

The kit has an excellent set of transfers, with the correct dull red and blue in the roundels. The colour of the code letters 'E-W' is Sky. They have been illustrated as being in red, but the former

Continued on page 158
AIRFIX magazine

PSL BOOKS FOR MODELLERS

How To Go Plastic Modelling

By Chris Ellis

Editor of *Airfix Magazine*

The second edition of a standard work on plastic modelling. Covers such topics as: basic assembly, detailing, converting, modelling materials, tools, painting, transfers, markings, research, display, maintenance and scenic settings. 168 pp, 8½" x 5½", 80 pictures, 7 pp of scale drawings, case bound. £1.50 net, plus 13p p & p.

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Editor of *Airfix Magazine*

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Fighting Colours

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How to order

PSL books are published by Patrick Stephens Ltd, 9 Ely Place, London EC1N 6SQ (Tel: 01-405 2297). Use this order coupon to obtain your copies—post it to PSL or hand it to your bookseller or model shop. (Send for free descriptive leaflets if not convinced!) If you prefer not to cut your magazine, order on a piece of notepaper.

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Illustrated by Carlo Demand

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(Block caps please) (11/71)

New Kits—continued

colour could have been possible and could have been correct at the time concerned, as the aircraft were repainted from time to time and photographs taken at that time show the codes painted in a light colour. They are positioned correctly on the transfer sheet, the package illustration shows the codes incorrectly placed on the starboard side.

Turning to the kit itself, there is mixed feeling. The detailing is very good, consisting of panel lines, but no rivets. The wings especially are finished very well, and there is very little flash on the parts. The elevators have slightly too wide a chord outboard, and the curvature in plan view should be continued to the third and not the second outermost rib line. On the other hand, the fuselage seems to be too narrow and pointed at the top, along the dorsal region. The cockpit canopy is also too pointed at the top and is a bad representation of the original.

The camouflage scheme, shown on the back of the package label is correct, being the standard FAA wartime camouflage scheme. With 39 parts, including stand, the kit builds up into a good model, but it is hoped that Frog will correct the errors and make it a better model still.

The price of the Frog Grumman F6F-3 Hellcat is 20p. Our sample came from Jones Bros of Chiswick, who can supply by post, postage extra. G.J.

Europe Model: 1:32 scale veteran Panhards

THESE kits are all Panhards—the 1891 model, the 1895 Coupé, and the 1905 Tonneau 'Roi des Belges'. These are all to the same 1:32 scale which is a useful factor for the collector.

Dealing with them in order, the 1891 model is the early horseless carriage that has featured in many car books and has participated in the London to Brighton run. The parts are very well moulded and completely free from flash. There are 63 pieces in the kit. These include the tiller steering and the ingenious block brake which incorporates a spike to dig into the ground to prevent the vehicle running backwards on a slope. The wheels have their solid narrow section tyres moulded on, the fronts being in one piece, with the rear in two to give the staggered spokes of the prototype. The inside half fits very neatly under the tyre. The kit is in all black plastic, but the illustration on the box suggests a reasonably simple painting job. A leaflet gives the car's history; this and the instruction sheets are in French only, but the sketches are numbered in relation to the identification sheet so there should be little difficulty in assembly. This model of the modern car's ancestor is priced at 62½p and is good value.

The 1895 Coupé has a lot in common with the 1891 but as its title indicates it is a closed car, with high roof, vertical pillars and upswep mudguards, and a character all its own. The kit is in black plastic with transparencies for the 'glass'. It is excellently moulded with only a slight trace of flash in one or two places. The 50 pieces include virtually all the visible parts of the original, including the chain drive, a nice touch with this being the sag in the chain. All four wheels are

in one piece with the long hubs of the prototype, thus reducing the wobble so apparent in some kits. The instruction sheet, again in French, should present no difficulty as the various stages of assembly are shown in shaded sequence. One can either use the box illustration for colouring or investigate the original.

The third of these Panhards is a model of a class that originated from a special car built for the Belgium King in 1904. It incorporated a number of unique features, such as removable windscreen and top, curved rear glass in what was known as a 'tulip' back, mudguards and bonnet of aluminium, and petroleum as well as acetylene lamps. It was rated 18/24 HP, seated six and had accommodation for dogs. One assumes they were carried in some sort of boot under the seats. Altogether this is quite an unusual and interesting conveyance. Again as with the other kits, the parts are black except the 'glass' and are very cleanly produced. This time there are 86 pieces and the instruction sheet has English and French text with appropriate numbers. Also, as in the Coupé, the stages are shaded in sequence. Assembly should present no trouble and the colour scheme included allows one to prepaint if desired.

The last two kits retail at 87½p and are both very good value. All three produce attractive miniatures of those early motor cars, and are available from the Model Hobby Consortium of Lewisham, who supplied our samples, and can supply by post—postage extra. B.L.

Artiplast: 1:48 and 1:50 scale aircraft

NEWLY imported into Britain by Model Hobby Consortium is the Italian Artiplast range of 1:48 and 1:50 scale model aircraft, some of which are really old Merit kits in a new guise. These well-moulded kits should give satisfaction to any keen aircraft collector, especially the Supermarine Walrus which is an old Merit kit and is a real beauty.

The only drawbacks to this range appear to be the rather clumsily detailed pilot figures and the fact that transfer positions are embossed on to the ex-Merit models. However, these small faults should not deter any reasonably competent modeller as they can soon be rectified.

Available from Model Hobby Consortium, 363 Lewisham High Street, at the average price of 60p, highest price £1.25, they make a welcome addition to the model aircraft field. The bulk of the range is made up of 1:50 scale Artiplast originals such as the Fiat CR 32, CR 42, and SM 79. Many of these have been reviewed here over the years and the quality is well-known. They have always been difficult to obtain in Britain but should now be more readily available. Included in the catalogue is a Stuka (with Italian markings), though we've yet to see this one. Some other interesting Italian types are also released, including the Macchi M29 Schneider Trophy floatplane.

The ex-Merit models (strictly speaking they are from the old Merit moulds) include old favourites like the Avro 504, Bulldog, Swordfish (a beauty), and the Tiger Moth. The old and now somewhat crude Merit transfers are included but can, of course, be replaced from other sources. Model Hobby Consortium are giving a big boost to the 1:48 scale scene

with the Artiplast range in that a fine selection is made available at modest prices. The discrepancy between 1:50 and 1:48 scale is not really apparent except by measurement, so both scales can be mixed quite happily. A lavish colour leaflet is available from MHC in return for a large SAE. C.O.E.

Rivarossi: 1:87 scale (HO) locomotives

THE Italian firm of Rivarossi produces one of the most comprehensive ranges of model trains available in the 'ready-to-run' field, offering HO and O gauge models, as well as N gauge under the Atlas label. In Britain, Rivarossi models have not previously enjoyed very wide availability but this situation should now improve as UK distribution has now been taken over by A. A. Hales Ltd, PO Box 33, Hinckley, Leics. We selected three typical locomotives for test.

There is a very large selection of American type locomotives and stock intended mainly for the American market and distributed there by AHM; the rest of the range is devoted to Continental locomotives and stock, fairly evenly distributed between French, German and Italian types.

A few years ago, foreign-made model railway items were very much more expensive than British-made models on the UK market, but just recently this differential has largely disappeared. The HO models are, of course, to 1:87 scale, 3.5 mm to one foot, in contrast to British OO, which is 4 mm to one foot. The track gauge is the same, 16.5 mm, and OO is, in fact, some 14% larger in volume than HO. HO enjoys a correct scale/gauge relationship, unlike OO which runs on what amounts to a 'narrow gauge' of about just over 4 ft.

The Rivarossi models we've had for test should give an indication of what is available at the lower end of the price range for anyone who is thinking of trying HO—though Rivarossi prices go up to £26. We started with the cheapest item, however, the C-16 class 0-4-0ST 'Little Joe' switcher of the Baltimore & Ohio Railway, one of the best-known of all American locomotives, which worked in Baltimore docks over the 1912-51 period.

The Rivarossi model is just under 4 inches long, really diminutive, and costs £4.80. It features a metal chassis, full Walschaerts valve gear of near scale proportions, wire handrails, a finely moulded plastic body, and an inclined (and enclosed) motor in the cab which drives the rear axle. Daylight shows under the boiler in prototype fashion, and the model is commendably accurate when checked against pictures and drawings of the real thing, though the motion is very slightly simplified but not really noticeably so. Omitted from the model was any representation of the power reverse mechanism which should be sited under a cut-away corner of the saddle tank. The cut-away itself is indicated, however, and we cut this out and made up a dummy power reverse gear from Micro-strip. Similarly some piping was omitted from the chassis and this can similarly be added from stretched sprue. Finally, we cut off the moulded cab and smokebox handrails and replaced these with wire, ending up with a very super-detailed model indeed.

Continued on page 163

AIRFIX magazine

MODELITONS

PLASTIC KIT SPECIALISTS—ASSOCIATE MEMBER I.P.M.S.

HASEGAWA A/c 1/72 scale

Northrop T-38A/F-5B Talon	34p
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Curtiss SOC-3 Seagull land plane	34p
Lockheed T-33A "Shooting Star"	34p
Heinkel HE.51A-1 fighter	44p
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Cessna A-37A "Tweedy Pie"	63p
Kawanishi Type 94-I "Alf" F. plane	75p
Convair F-106A Delta Dart	90p
Mitsubishi G4M-1 MOD.22 "Betty"	£1.44
Kawanishi H6K5 "Mavis" F. boat	£3.14
Shinmeiwa PS-1 or SS-2 F. boat	£3.75



HASEGAWA A/c 1/32 SCALE

CURTISS BF2C-1 BIPLANE

BOEING P-12E BIPLANE

BF2C-1

Illustrated Left

PRICE: £2.00 EACH

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GR. Mk. I H.S. Harrier	1/72	47p
F-100D Super Sabre	1/72	47p
BAC Lightning 6	1/72	47p
F-105D Thunderchief	1/72	47p
Dornier 17Z	1/72	47p
D.A4H/K Skyhawk	1/72	47p
RF-101C Voodoo	1/72	57p
F-102A Delta Dagger	1/72	57p

MONOGRAM

Curtiss P6E biplane	1/72	45p
Curtiss F11C-2 biplane	1/72	45p
Boeing F4B-4 biplane	1/72	45p
Curtiss P-36A	1/72	45p
G.FBF Bearcat	1/72	45p
P-51B Mustang	1/72	45p
D.A.I.E. Skyraider	1/72	60p
G.F7F-3 Tigercat	1/72	60p
M.E.BF110E	1/72	60p
Dornier Do-17Z	1/72	90p
G.HU-16B Albatross	1/72	90p
Focke-Wulf 190A	1/48	60p
P-51B Mustang	1/48	60p
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photoPAGE

More rare pictures from readers with captions by **Michael J. F. Bowyer**. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.

Below: An interesting picture taken at Old Sarum in 1935 shows two apparently new Avro Rotas (nearest is K4231). These machines were in use at this time with No 4 Army Co-operation Sqn and may well have been awaiting delivery (W. S. O. Randie). **Below, right:** Swordfish of an unknown squadron in 1938-39. Aircraft are as follows — E:K8425, K:K8874, H:K8872, D:K8424, C:K8348 (John James).



Right: Barracuda III of 822 Sqn taking off from Thorney Island in March 1945. Note the depth charges carried under the wings. **Below:** Canberra B(I)8 XK951 of No 16 Sqn at RAF Laarbruch in June of this year. The aircraft now sports ferocious sharks' teeth insignia, seen in close-up in the lower view. Note the first-aid compartment marking (R. T. Clucas).



Above and below: Harvard IIAs of No 4 FTS Heany, Southern Rhodesia, in 1947-48. XD is EX518 and BL is EX411. These aircraft are basically silver with yellow T bands and dark A/D panels which are possibly olive drab. Note 'NC' or 'NG' in a triangle on EX518. Wheel hubs on this aircraft may be blue, the tone certainly matching that of the roundel in another print, not published here (C. J. Dickson).



The San Salvador Air Force used the FG-1D Corsair which was similar to the Vought-built F4U-1D Corsair. For further details see the article on page 132 of this issue.

AIRFIX magazine

Letters to the Editor

Waterloo figures

RECENTLY I have started to paint a box of French Waterloo Cavalry (Cuirassiers). When painting them I realised that there might be two different regiments in the box. My reasons for this is the variation in saddles.

The horses with the two pins on the hind legs seem to have a saddle of leather with a saddle bag. The horses with the pins on both front and hind legs have a saddle of sheepskin (no saddle bag).

After something of an investigation I found that the 11th Cuirassiers did have a sheepskin saddle as did the 2nd but the saddle blanket was shorter (there are others, no doubt, but as I had found the right one I saw no need to go any further with the sheepskin). I still do not know what the other regiment is. Could you please tell me what they are and the correct colour scheme?

The Cuirassier's uniform does not differ in the box, though it might between the two regiments.

Philip Hopkins, Rednal, Birmingham.

Robert C. Gibson writes: *This is a very good point. In fact the horses with the sheepskin were ridden by other ranks; those with leather saddles and holsters to match the saddle cloths by officers. The Airfix Cuirassiers seem to have a high proportion of officers to men.*

Dutch Infantry

I WOULD like to add to Mr Scott's letter (June issue) about the Dutch-Belgian 1815 uniforms. It appears that when Napoleon returned from Elba, Prince William I took the throne, the first in the line of Orange. The North and South Netherlands (now Dutch and Belgian) armies merged and the numbering of all battalions, except the 2nd Nassau Light, became continuous from 1 to 36. There were 4 Belgian Line battalions (1, 3, 4 and 7), 8 Dutch Line battalions (2, 6, 8, 9, 12, 13, 14 and 15), 4 Swiss Line (29, 30, 31 and 32), 9 East Indian Line (5 actually 3 battalions), 19, 20, 21, 22, 23, 24, 25, 26), 2 Belgian Jägers (35 and 36), 4 Dutch Jägers (16, 17, 18 and 27), 2 West Indian Jägers (10 and 11), and the 28th was the Orange-Nassau Regiment. Numbers 33 and 34 were the depot and garrison battalions. The Militia for the North were Nos 1-20, and the South were 20-45, but these were not at Waterloo as they were only set up in April 1815.

The Swiss had the same uniform as the Netherlands Line, only that the lining, collars, cuffs, and piping was for the 29th deep red, the 30th orange, the 31st light blue and for the 32nd red. Each had nine (chest), two (cuff), and two (on each side of the collar) white facings, each with a silver button, except for the 32nd who wore orange lace with gold-coloured buttons. The Jägers wore green jackets and trousers, and for the Dutch yellow cuffs, collars, piping and lining, while the Belgians had white facings with a red lining. The official Militia uniform was

CONTRIBUTIONS

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit, and the publication of photographs from readers is similarly rewarded. As from this issue a new scheme comes into force whereby Airfix Products Ltd award the kits on the following scale:

ONE letter or photograph published is rewarded by any kit from Series 1-6 inclusive. For TWO letters or photographs any one kit up to and including Series 9 can be chosen, or alternatively two kits up to Series 6. For THREE separate contributions (eg, photographs) the entitlement is one kit up to Series 12 or three kits up to Series 6. Readers can make their choice on the special card which we send out after publication. The kits are supplied direct by Airfix Products Ltd.

We receive a large volume of mail from readers; all letters are read and we answer or acknowledge as many as possible provided that a SAE or stamp is included for reply. The Editor cannot accept responsibility for safe keeping of contributions though every care is taken. Opinions expressed by correspondents on this page are their own and do not necessarily reflect the views of the Editor or Airfix Products Ltd.

a dark blue jacket and grey trousers, with a white lining and orange-red collars, cuffs and piping. The black shako had a silver plate, the button colour. The Indians wore the same as the 32nd Swiss but with light blue facings and lapels.

It may be interesting to know that in Anthing's Indian Brigade all the Indian regiments were present except the 25th and 26th. This was because all the Indians (Nos 19-24 that is) had a European company coming from the Netherlands. This made a type of Flank battalion under Anthing. The other companies (including those of the 5th, 10th, 11th, 25th and 26th) were colonial.

C. Harthoorn, Herne Bay, Kent.

REFERRING to 'Letters to the Editor' in the June 1971 issue, the following information on Dutch-Belgian infantry might interest Mr Scott and other readers.

To oppose Napoleon's threat, the Dutch king had placed his field army under the command of the Duke of Wellington. Out of this field army (38 battalions of infantry and seven regiments of cavalry) a force of 22 battalions of infantry and all seven regiments of cavalry were present on the Waterloo battlefield. Some of these units were regulars, others conscripts.

The 22 battalions mentioned above, forming four brigades, were the following:

- 1 Belgian Jäger (No 35, 36).
 - 1 Dutch Jäger (No 27).
 - 1 Belgian Line (No 3, 7).
 - 3 Dutch Line (No 2, 12, 13).
 - 9 Dutch Militie (conscripts) (No 3, 4, 5, 6, 7, 8, 10, 17, 19).
 - 2 battalions of the 2nd Light Infantry Regt Nassau (hired Germans).
 - 3 battalions of the Oranje Nassau Regt No 28 (hired Germans, ie, mercenaries).
- Each Dutch-Belgian battalion had 10

companies, two of which were Flankers (flankers). Whether they were divided into a heavy and a light company I cannot say.

Although the Dutch army also had four Swiss regiments, these were left in their respective garrisons and were not present at Waterloo. As for Mr Scott's remark on colonial troops, I wish to point out that at the time no natives served in the Dutch army. The so-called 'Indische Brigade' (5 battalions of regular infantry) consisted of Dutchmen and the brigade was destined for services in the colonies.

H. M. Bosch, Voorburg, Holland.

Pill-boxes

I HAVE just returned from a holiday in a small country cottage five miles from Folkestone, at a place called Paddlesworth. From here I explored the Kent countryside, and while doing so discovered a large number of pill-boxes, not an unusual sight in that part of Kent. However, being an enthusiastic wargamer, I examined these closely.

I found that the position of each of these pill-boxes had been carefully set out. The first and obvious fact that each possessed was their location on a hill or piece of high ground overlooking a road or railway. I found that on some, by looking through one of the holes, a view of another pill-box could be seen quite easily, especially with a pair of binoculars. A chain of such pill-boxes would prove to be an effective means of communication as well as a safeguard.

The shape of each pill-box had been carefully thought out as well. The basic shape being pentagonal, although there are many variations. Once inside I was quite astonished at the size compared with the apparent small size from outside, another virtue of the pentagonal shape. Typical dimensions are 6 ft high 2½ ft length for each side, and 9 inch thick concrete.

I hope this information will prove helpful to wargamers, especially those who model in small scales, as a couple of well-placed pill-boxes on such a landscape can prove to be the centre of attraction in a small skirmish. The point is that dioramas or wargame set-ups are often seen where pill-boxes are haphazardly placed instead of covering each other or covering important positions as they did in real life.

J. D. Gower, London SW16.

Isherman or not?

I HAVE a few comments that might be useful to readers concerning the article on the 'Isherman' conversion in April 1971 issue, and the letter about Israeli half-tracks.

The conversion of the Sherman is in fact a Super-Sherman and *not* an Isherman. The Super-Sherman, as depicted, mounts the French SA-75 mm model 50 gun, as mounted in the AMX 13 model 51, but the Isherman is a major reconstruction of the Sherman. For those wish-

Continued on next page

Letters—continued

ing to model this, it can be most easily done from the M4A3E8 (previously covered in an earlier article) using tracks from the Leopard, Leopard road wheels for the rear idler and StuG III road wheels for the Sherman HVSS road wheels. The Isherman was fitted with the French 105 mm in a modified T23 turret, some also being fitted with 20 pdr guns (83.4 mm) from earlier Centurions. These Ishermans have also been fitted with 500 HP Pratt & Whitney R-1340-AN-I engines, from T-6 Texans, which give the Isherman greatly superior speed and performance over other types of Sherman. They have also been fitted with new transmissions, steering and exhaust systems.

Both Super-Shermans and Ishermans were built on M4A1, M4A2 and M4A3 chassis. The Ishermans have nearly all got HVSS, but the Super-Sherman mainly has the old VVSS. The conversion on the Super-Sherman should have two smoke dischargers each side of the turret, not one side only as given in the conversion.

For those, like me, wishing to construct Israeli and Arab AFVs, all the Israeli Shermans are being withdrawn and rebuilt as 160 mm Mortar SP and 155 mm SPH vehicles. However, for those modelling the '6 Day War' the Shermans can be used in the combat gun role, and also a few Sherman Flaiks were used by the Israelis in clearing the minefields.

Concerning the half-tracks, since the Airfix model is a hybrid the easiest version to construct is the M9A1 with the flat section mudguards, but the hull body rear must have the corners rounded off and two small fenders attached each side of the towing hook. Some semi-tracks have 20 mm Oerlikon cannon (as in the LVT(A)4) centrally mounted on the bulkhead aft of the driver's compartment. The semi-track is also used for many other roles, including 120 mm, 360° traverse mortar carrier, 4 x SSII A/T missile carrier and 106 mm RL carrier.

C. Amundzen, Rhiwbina, Cardiff.

Several other readers wrote similar letters concerning the Isherman, for which many thanks.—EDITOR.

Lunar module

WHILST recently making the Lunar Module it occurred to me that a simple way of making an effective model is to cover the descent stage, except the rocket nozzle, steps and porch, with gold foil. The gold foil was obtained from a couple of bars of Bournville chocolate. Ordinary plastic glue can be used to hold the foil in position, though no great care is needed in its appearance as the genuine article is quite crumpled. The decal is placed in the normal position and the whole given a cover of gloss clear varnish. The result is a very effective and life-like model.

J. Finch, Brixham, South Devon.

German 'Flower' class

FOLLOWING Mr G. J. Harlaar's letter published in the July issue of *Airfix Magazine*, I would like to clear up the matter of the armament of the German 'Flower' class corvettes. I took my information from the *French Navy*, Volume II, by H. le Masson, which

differs from that given in *German Surface Vessels*, Volume II, by H. T. Lewdon, which Mr Harlaar quoted, so either could be correct. The books also disagree on the date of launching of PA.4.

The caption underneath the photograph of HMS *Sussex* on page 133, November 1970 issue of *Airfix Magazine* mentions an 'Airfix HMS Dorsetshire kit'; is this a misprint or can we hope for a new Airfix warship release? In common with other contributors to the letter page, I would like to see more Airfix warships. I feel sure that a 'Southampton' or 'Colony' class cruiser would be popular.

R. C. Mitcheson, Louth, South Lines.

Our reference should have been to the 'Airfix HMS Suffolk kit'.—EDITOR.

Revolutionary minutemen

MILITIA groups were civilians organised in an armed division and the troopers were known as Minutemen. These groups were used even before the American Revolution to protect towns from native Indians. When the Revolution began, the Minutemen were extremely important.

I have found a way of making the Minutemen from Airfix 1914 British infantry. First, all packs, canteens and belts are removed. Next, the gaiters are shaved down till they become smooth. The long sleeves are then cut away to become a short-sleeved shirt. The British Infantry rifle is a little too small; therefore a Civil War musket is more suitable. The hat is now ready to be made. First, a piece of lead sheet from a toothpaste tube is obtained. Then a paper-hole-puncher is used to make a small hole in the lead sheet. The small circle which is punched out is the main part of the hat. With a pair of tweezers, bend up three of the edges to make a type of triangle which makes the three-cornered hat.

You will see that it fits the heads of Airfix men and looks very realistic. After the British hat has been removed, the three-cornered hat is glued in place. The other type of Minuteman hat is simply a Confederate slouch hat turned up at the front, but the front piece is turned to the side of the head on the Minuteman.

The hat is black. The braided hair down the neck can be made from a thin piece of Plasticine. Minutemen wore a vest which was either a tan colour or dark brown. The collar was white, with white short sleeves. The tight breeches which extended to the knee were black, dark brown or a tan colour. The gaiters were white, the shoes black, buttons were silver. The majority of the Minutemen were issued with the smooth bore musket 'Brown Bess'. On the right hip was a cartridge box attached to a black belt.

Donald Smith, Ottawa, Ontario, Canada.

Military matters

ON the front cover of the October 1970 issue you published a colour photograph of a FV 432. Your comments regarding the colour are wrong: the camouflage applied to the School of Infantry vehicles is unique. Most FV 432s are matt green (Humbrol 30) or matt green and matt black; camouflage being left to the individual units.

In the July 1971 issue, the article by Roy Dille shows a M51 Jeep which is inaccurate, with two basic faults: the rear of the M51 should be cut out to

Dress of a Revolutionary Minuteman—see letter on this page



take the rear mounting leg of the 106 mm recoilless rifle, and the other fault is the bonnet, which, having a bigger engine than the older Willys Jeep, means that the bonnet was higher and the forward 6-9 inches had a prominent curve downwards.

Captain C. M. Rice, Exmouth, Devon.

Roy Dille's article pointed out that the Jeep model in question had inaccuracies—it is also over-scale in width, for instance. In fact, we had great difficulty in determining just which model of the Jeep it was supposed to represent and this is the first positive identification to come our way.—EDITOR.

Correction

In the September issue we wrongly credited the model naval dockyard scene on page 47 to C. Bramley instead of E. Kay. Our apologies for this mistake. In the October issue we stated that the Saab Viggen is in service with the Swedish and Danish air forces. This should of course have been the Draken, as the Viggen is only now coming into service with the Swedish Air Force. Many thanks to all the readers who pointed this out.

Pen-friends wanted

The following readers have sent in requests for pen-friends over the past few months:

M. K. Jablonska is interested in exchanging models, magazines, etc. with anyone in Britain. His address is Krakow AL: Retoryka 9/3, Poland. Roberto Mina wishes to exchange kits, models and photographs of British aircraft of World War 2 with anyone interested in the Italian Air Force of the same period. Address: Via Nazario Sauro 5 21100 Varese, Italy. Donna M. Visnaw wishes to correspond with anybody in Britain. Address: (Mrs. David E. Visnaw), 2314-4 Chalet Gardens Road, Madison, Wisconsin 53711. Peter Bradbury wants an overseas pen-friend about 12 years old and wishes to exchange aircraft kits for warship kits. He is interested in modelling ships. Address: 3 Fieldhead Drive, Guiseley, Nr Leeds, Yorks, England. Cestmir Hybl is interested in collecting aircraft data and aircraft modelling. Address: Bresovka 29, Bratislava, Czechoslovakia. He'd like to hear from anyone in Britain wishing to exchange kits and magazines. Gerald Zietsch, 18, would like to correspond with any girl of the same age, interested in aircraft modelling. Address: 4341 Beeslenlaubingen, Schmiedegasse 28 (über Könnern), German Democratic Republic. Zavadil Jaroslav wishes to contact British plastic modellers, willing to exchange aircraft kits and magazines. Address: Hvezda 6, Prostějov, Czechoslovakia (CSSR). Kevin W. Nolan would like a pen-friend in Australia interested in wargaming and AFV modelling. Address: Box 132, PO, Windsor, NSW 2756, Australia. Peter Stankovsky (age 24), Capkova 2029, Litvinov 1, Czechoslovakia, wishes to hear from anyone in Britain willing to send *Airfix Magazine* and kits, presumably on an exchange basis.

Anyone interested should make contact direct at the address given. All the above readers can write English.

Book Reviews—from page 138

successful actions and a few that did not have a happy ending are given, together with accounts of wartime life on a Lancaster station seen through the eyes of the ground crew.

The pictures, there are more than 200 of them, are superb. Lancasters are shown in many different attitudes, both in the air and on the ground, being bombed-up, armed and serviced. There's even a collection of 'prang' pictures and a section devoted to Lancaster airfields—during the war and now. Lancasters that appeared in films have also not been forgotten. Elsewhere there are pictures of Lancs on the production line, others deal with the prototypes and their introduction into service.

Lancaster veterans as well as present-day enthusiasts will welcome this book.

The Straits of Messina.

Johannes Steinhoff.

Andre Deutsch.

£2.95.

THE air war seen from the Luftwaffe side just before the Allied landings in Sicily. General Steinhoff, then a Major in charge of Jagdgeschwader 77, tells of the operations flown by his Messerschmitt Bf 109s from the Trapani airfield complex in north-west Sicily.

Having been thrown out of North Africa and the island fortress of Pantelaria, the German air forces were decimated in the face of the concentrated air power put up by the Anglo-American invasion forces. The book tells of the attempts to combat the bomber streams which attacked strategic targets in Italy and the tactical ones on the invasion beaches and supporting airfields. It would appear that the German fighter pilots had to combat their own high command as well as the Allied Spitfires, Thunderbolts and Lightnings.

WARSHIPS

Warship Identification.

Li-Cdr E. C. Talbot-Booth RD, RDR

and David G. Greenman, SC, SRC.

Ian Allan Ltd, Terminal House,

Shepperton, Middlesex.

£8.50.

ALTHOUGH rather an expensive book, it is of interest to warship enthusiasts who want to improve their knowledge of ship recognition techniques. The book is split into several parts, each dealing with a different facet of the subject.

Section One deals with aids to identification such as: usual position of armament, types of mast, shapes of directors, funnels, and weapon turrets, etc.

Section Two covers ship silhouettes and their coding, using the methods explained in the first section. Section Three groups all the warships in the book by appearance no matter what their function might be and drawn to a larger scale than previously, gives additional ship detail. The reasons for this are fully described in the first section. Ending with a comprehensive index, this is a really first-class book which, in addition to *Janes*, should be on every enthusiast's bookshelf.

Royal Navy Warships, 1939-1945.

W. G. D. Blundell.

Almark Publishing Co Ltd,

270 Burlington Road, New Malden,

Surrey.

£1.25 (paperback); £2 (hardback).

THIS reference book follows the format of a previous book by the same author. The earlier work covered current RN ships while this one, 120 pages in the usual Almark format, covers the British fighting ships of World War 2. These are shown class by class with basic data, names, 1:1200 scale drawings, and at least one picture of almost every class. There are over 150 such scale drawings, and about 120 pictures, so the book is specially useful to naval wargamers or ship modellers who want a source of constant scale drawings to a popular size. Each type of ship is given a brief history of its employment in the war years. There are some colour illustrations, though fewer than in most Almarks books.

Warship Profile 10 and 11.

Profile Publications, Coburg House,

Sheet Street, Windsor.

50p.

THESE two books are companion publications covering the technical and operational histories respectively of the carrier *Illustrious*. In the usual format, the artwork shows some representative aircraft and colour schemes and appearance at different times of the war. There is a fine selection of pictures and armament drawings, lists of captains, flag officers, and operations, etc. We spotted one picture dated and described as 1940 which is obviously 1947 as confirmed by similar pictures in the second book.

New Kits—from page 158

The second model received was a complementary type—an 0-6-0 switcher of the B & O, strictly speaking a USRA (United States Railway Administration) standard design of 1917-19 which was used by several companies. In the Baltimore & Ohio it was known as class D-30. Priced at £8.65, the model is very highly detailed and only the brake gear seems to be noticeably missing. There is a two-position drawbar on the tender, allowing close scale coupling or wider coupling for sharp curves. Motor is once again sited in the cab, this time driving the centre axle by shaft and a gear train. Both these American types had Rivarossi continental type couplers at the back and a dummy knuckle coupler on the front pilot beam. While the back coupler operates with Rivarossi American stock, which is similarly fitted, it would be necessary to fit horn-hook or Kadee couplers for operation with virtually all other models of American stock. This is a simple enough matter—Victors of Islington stock both coupler types as separate items—though it is necessary to cut a notch in the plastic pilot beams of both locomotives when the dummy couplers are replaced by working types.

Our third example was a French old-time 0-6-0 long boiler tender locomotive (price £5.25) of 1870 vintage which must surely be one of the most charming and pleasing ready-to-run models available. It is quite tiny and the motor and drive is actually carried in the four-wheel tender, though pick-up is from the locomotive wheels. This subterfuge is not readily apparent, however, and this model proved to be the best performer of the three as far as really slow running is concerned. Details include a wealth of piping, lights, cab interior, and so on, all perfect from any angle. This type of long boiler locomotive was also used in Britain and it would take very little work to 'anglicise' the model.

By British proprietary standards the performance of all three of these locomotives is outstanding. We found that really slow and smooth running was possible at very low controller settings. Our track has dead-frog points and these proved no obstacle at all to the Rivarossi locomotives.

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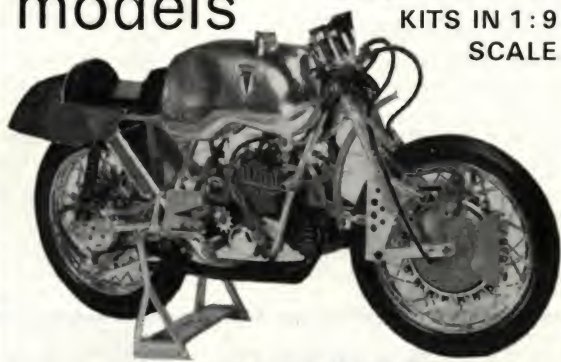
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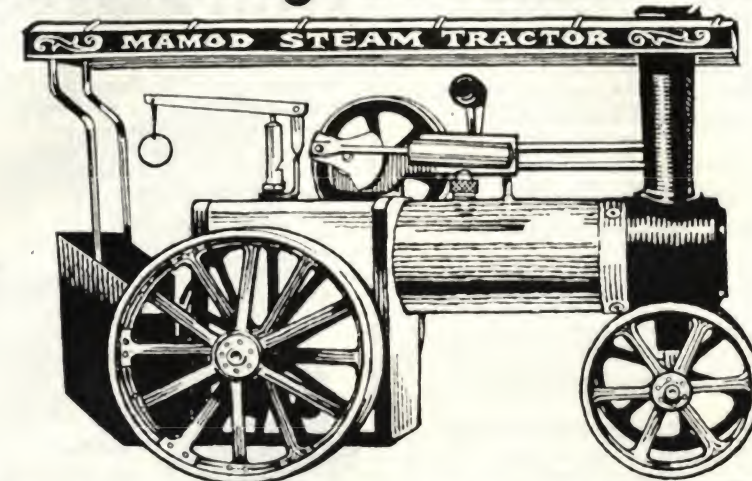
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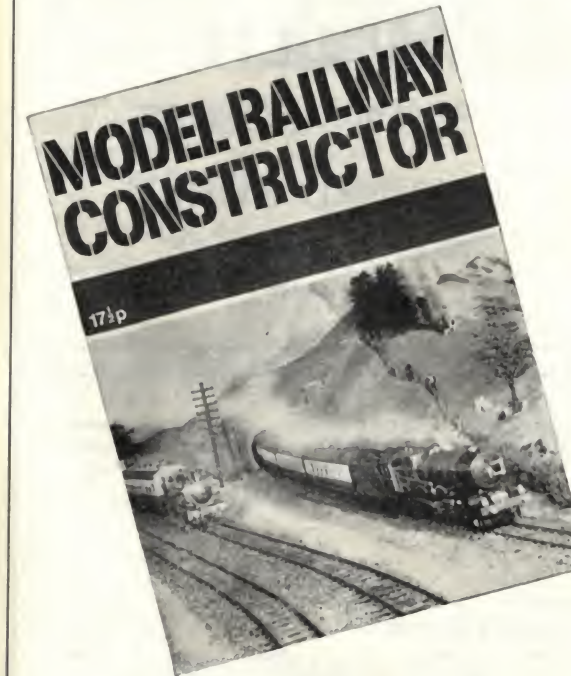
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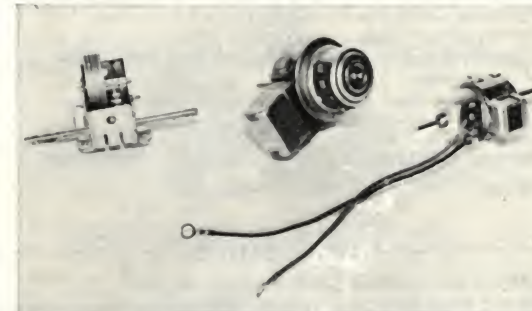
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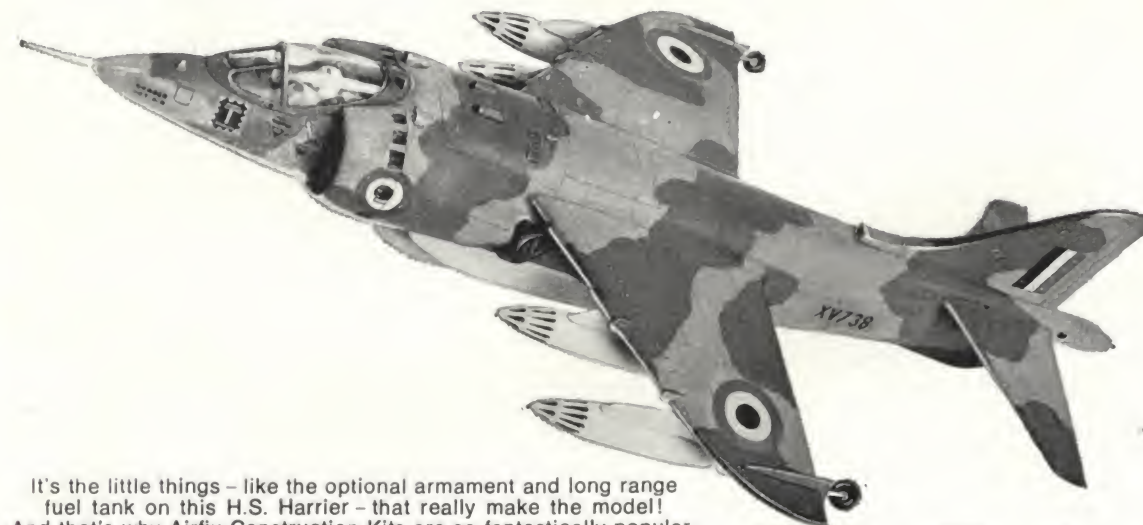
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